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Canon Sony Nikon

The New Super DSLRs!

Canon 5D Mark III,
Sony SLT-A99
& Nikon D800
Reviewed



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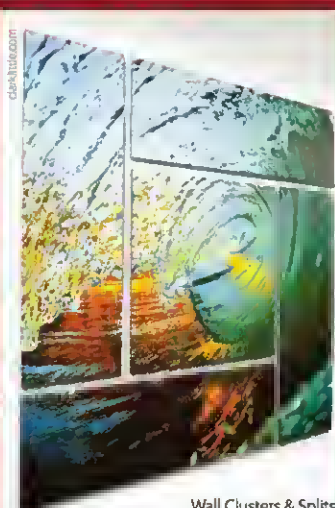
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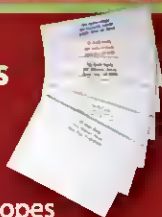
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SIGMA

CAMERA: 1/3 GM - SD4 : ISO50, F4.0, 1/60-sec | LENS: SIGMA 17-50mm F2.8 EX DC OS HSM (50mm/17-50)

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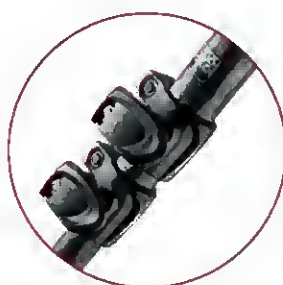
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THIS YEAR was a big one for new camera introductions, with Canon and Nikon delivering hotly anticipated updates to their top-tier DSLRs: the Canon EOS 5D Mark III and EOS-1D X, and for Nikon, the D800 and D4. As of press time, Canon and Nikon introduced four new models each. One of these, the EOS M, is Canon's first entry into the mirrorless market, featuring a large APS-C image sensor and a new line of lenses to match.

Sony also was busy this year, introducing five new models so far in 2012, including the first full-frame Translucent Mirror camera, the Alpha SLT-A99. In fact, all of the major camera makers expanded their offerings—more than 20 new models have been released. With so many exciting new cameras to show you, we focused this year's Buyer's Guide coverage on models introduced this year only. You can find reviews of older models that remain current in your favorite brand's lineup on our website, along with a huge archive of equipment coverage and the best how-to instruction.

We've covered everything you'll need to make stunning images, from cameras and lenses to lighting tools, printers, software and accessories. We've also included handy links to additional reviews and information on our website at the top of each article. For our Zinio readers on iPad and Android tablets, a wealth of equipment reviews and photo tips are just a touch away.

Also in this issue are the winners of the 3rd Annual Art of Expression Photo & Video Contest, presented by Sony. This is one of our most popular contests, with four unique categories, each inspired by a Sony Artisan of Imagery, who provides video tips to help contestants get a winning shot. Congratulations to the winners, and to all of the finalists, for submitting some really excellent images.

Though this year's Art of Expression contest is over, I encourage you to visit the contest at dpmag.com/expressions to check out the finalists' gallery and watch the how-to videos. There are some great tips and inspiration in these videos that will help you take better pictures all year long and prepare you to submit a

BUYER'S GUIDE 2013

SIGMA SD1 MERRILL
Sigma is the only camera maker to offer the unique Foveon X3 image sensor, which stacks pixels in three layers so that every pixel receives all three primary colors of light: blue (in the top layer), green (in the middle layer) and red (in the bottom layer). The Bayer-array sensors used in other DSLRs must rely on color filters to separate the colors, producing the missing colors via proprietary interpolation of data from neighboring pixels. That results in more and softer artifacts, which require use of an image-blurring, anti-aliasing filter over the sensor. The Foveon sensor doesn't need the blurring filter so it produces higher resolution than Bayer sensors of similar horizontal-by-vertical pixel count.

The SD1 Merrill (based after the late co-creator of the Foveon sensor) eliminates the latter drawback of the original SD1—the Merrill has a very competitive price. Besides its sensor and image quality, the SD1 Merrill is also known as the only selection of which from which users can choose Sigma's best-known as a lens manufacturer and offers more than 40 for the SD1. These range from a 8.5mm circular fisheye and an 8.5mm superwide zoom to an 800mm F5.6 super-telephoto and the world's fastest 500mm, the 500-800mm F2.8 zoom. Many feature Sigma's DL optical image-stabilizing system. With the camera's APS-C sensor, each lens features the same 1.5x crop factor as a 35mm camera, so 200mm camera is effective focal length of 300mm through 800mm are available (but the 8.5mm-equivalent circular fisheye).

The SD1 body is rugged (it's the first splash-proof Sigma DSLR) and straightforward, designed for shooting still photos efficiently. There's no video or view-finder capability, but a bright parallax-free LCD monitor shows 80% of the actual image area. There's a 3.0-inch LCD monitor for playing back images. Estimated Street Price: \$2,299 (body only).

SONY SLT-A99
In 2012 Sony introduced the first camera with its Translucent Mirror Technology (TMT)—the entry-level SLT A55 and A33. A best-in-class mirror transmits most of the light to the image sensor, simultaneously directing a portion of it up to the camera's phase-detection AF sensor. While conventional DSLRs must alternate focusing and exposing, since the SLT mirror sensor is down for the taking and up for the sensor, TMT allows the camera to continuously focus and expose at the same time. This results in faster moving parts and efficient.

SONY ALPHA SLT-A99
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winning entry next year, or in any of our upcoming contests—like the 6th Annual Your Best Shot Contest open right now (entry deadline is November 20).

Speaking of our contests and galleries, I'm excited to let you know that we've recently redesigned our gallery format to include larger images so your photos look even better. Did you know you can create your own virtual "lightbox" of your favorite photos to conveniently share your portfolio with family and friends online? Membership is free and includes other benefits as well, like receiving our popular "Tip of the Week" email. We're always working on new features

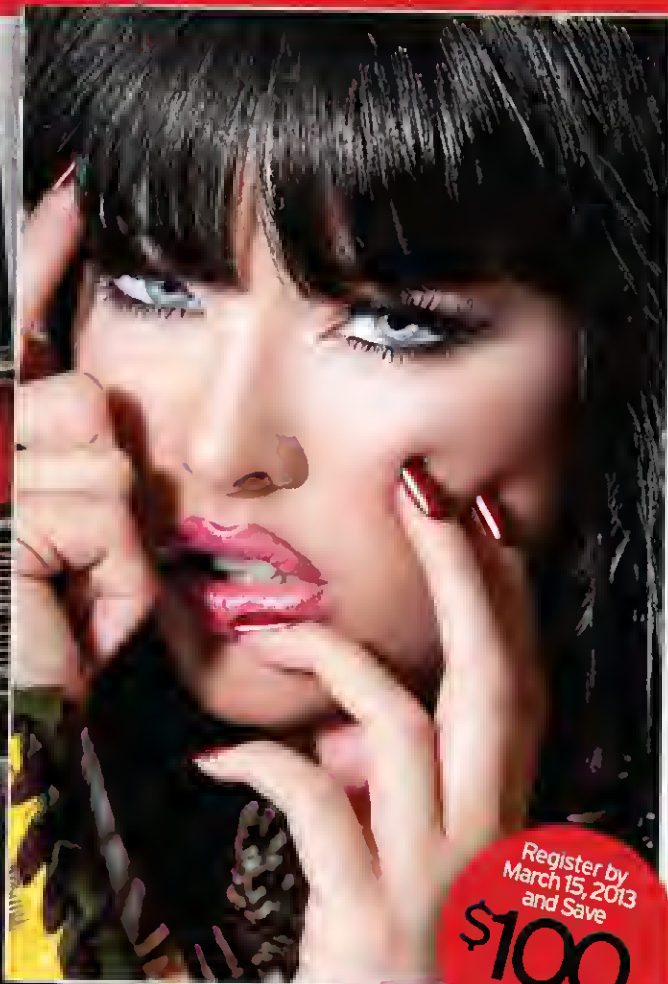
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—Wes Pitts, Editor

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3rd ANNUAL ART OF EXPRESSION CONTEST WINNERS

Our Sony-sponsored 3rd Annual Art Of Expression contest was the biggest and best yet. We received over 14,000 entries, and you can see all of the finalists at www.dpmag.com. The Sony Artisans Of Imagery Andy Katz, David McLain, Cristina Mittermeier and Brian Smith judged the competition, along with the editors of *Digital Photo* and *Outdoor Photographer* magazines. All of the judges agreed that this was the best pool of talent we had seen in the three years since we started this program. Congratulations to the winners and all of the finalists!



ONE WORLD IN FOCUS WINNER (Majestic by Robin Moore) "This shot was taken in Laikipia, Kenya, a stronghold for both black and white rhinoceros. I saw this beautiful and large white rhino lying down with an oxpecker on its flank and stopped to shoot it; under a brooding sky, I felt there was potential for a dramatic black-and-white image. As two zebras approached, I waited until one had passed and one was approaching the rhino. I decided to lay down for the shot, putting the rhino and zebra on the same plane against the sky, and closed the aperture a little to get the rhino and zebras in focus. I wanted to capture a feeling of drama and majesty and to accentuate the size of the rhino under a dramatic overcast sky."



EXPRESSIVE PORTRAITS WINNER

(Morning Surprise by William Lee) "It's impossible for us to experience zero gravity at home. I think it would be a big surprise, and the expression would be something like, OMG, if zero gravity occurred at home. I discussed my plan with my daughter about making one photo of zero gravity, and she was so excited. We used one aluminum extension ladder, one 2x4 beam, one small piece of wooden board and 25-pound fishing lines to make a platform to support the balance point near her belly. It was so hard for her to keep balanced with a pose and expression like this, so I had only 10 seconds to focus and shoot each time I put her on the platform. All other floating things were also supported by transparent nylon lines. One softbox and one gelled studio strobe were used for illumination. Safety pillows covered the floor, but weren't in the viewfinder. Clone Stamp was used in the postprocessing to remove all the nylon lines."



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*Sony digital SLR camera bodies rely on the camera's image stabilization function. For that reason, the VC (Vibration Compensation) image stabilization function is omitted from lenses manufactured with Sony DSLR mount.



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ALL ABOUT LIGHT WINNER (Sunrise Celebration by Didier Ciambra) "I took this photo very early on a spring morning in Death Valley National Park, Calif. The sun was very close to breaking above the distant hills, highlighting the subtle blues and oranges surrounding the spectacular sweep of clouds. They were also reflecting soft light back onto the foreground of the road, which was beautifully captured in the luminescence of the desert cactus and bushes. It was only once I went into postproduction, carefully teasing out the subtlety of that morning light, that the photo really popped in the most unexpected way. That's what I saw that day, and I was very lucky to have captured all the elements of that moment so vividly expressed in this photo."



THE NARRATIVE VIDEO WINNER (Memoirs Of A Scanner by Damon Stea) "Memoirs of a Scanner" is a day-in-the-life view of an office scanner. The idea was inspired by an incredible legally blind photographer I met named Kurt Weston, who shoots his photographs entirely with a flatbed computer scanner to simulate his limited field of vision. (Here's a link to the documentary I filmed about him and other blind photographers: vimeo.com/534656D.) The video was shot as stop-motion on an HP scanner/copier—"scanimation," as we dubbed it. It was featured by magazines such as *Gizmodo* and *Wired*."

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TOP 10 TIPS FOR CAMERA BUYERS

CONSIDER THESE FACTORS WHEN CHOOSING YOUR NEXT CAMERA | BY WES PITTS

Digital technology hasn't only transformed the way we take photographs, but also created an explosion of camera options. Where a camera maker in the days of film would have a few models in their line, it's not uncommon today to find a dozen or more options from each manufacturer.

This is partly because there are more variations of camera design today. The film shooter had basically two choices: SLR or compact "point-and-shoot." In the digital world, the compact, fixed-lens cameras have split into two varieties: the very simple, very small point-and-shoot models, and the more robust, high-performance models with pro features and expansive zooms.

Interchangeable-lens models have also diverged, into three types: traditional SLRs, Sony's fixed-translucent-mirror cameras, and mirrorless models that completely omit the mirror box and optical viewfinder and dramatically cut size and weight in the process.

We have more choices than ever, and that's a good thing—if you know what you want. Consider these 10 factors to help define your needs as a photographer, and your camera selection will be much easier.

1. SIZE & WEIGHT. You've probably heard the aphorism, "The best camera is the one you have with you." It makes sense. If the size and weight of your gear is going to strongly influence whether or not you carry it often, then you ought to rule out larger cameras.

Your best options will be mirrorless systems, smaller DSLRs or a premium compact camera with a generous zoom.

2. PRICE. Don't assume you have



CANON EOS 5D MARK III

to buy the most expensive camera to get something that's perfect for you. Many of the more costly cameras are priced that way because they have features that only a handful of photographers will actually need or use. And don't forget to reserve part of your budget for lenses, lighting gear and accessories that play a major role in the quality of your images.

3. DURABILITY. This is one of those features that drive up a camera's price. Metal alloys are more rugged than plastics and composites, but also more expensive. Think about your favorite subjects and typical shooting environment. If you shoot mostly indoors, you probably don't need to worry about heavy-duty construction and weather-proofing. Also consider how you handle your gear. If you do a lot of travel photography, shoot in inclement weather or generally expect your camera to withstand being knocked around, then you might

want to invest in a DSLR body that's built to take it.

4. SPEED. It's pretty incredible that most of the cameras in this buyer's guide can shoot four frames per second or faster—some much faster. Canon's top-of-the-line EOS-1D X can capture JPEGs at 14 frames per second or RAW at 12 fps. Sure, the Canon retails for almost \$7,000, but the \$650 Sony NEX-5R can do 10 fps with continuous autofocus. So, speed is available to you, regardless of your budget. Most photographers don't really need that speed, though. Unless you shoot a lot of fast action sports, capturing in high-speed bursts means you'll have a lot more images to organize and store. It's nice to know you have the horsepower when you need it, but only a handful of subjects actually require it. The lesson here is don't dismiss a camera you otherwise prefer because of capture rates if you don't actually need the speed.

5. INTERCHANGEABLE LENSES.

The ability to switch lenses is about more than just covering a focal range. (Many of the premium compact cameras featured in this buyer's guide have extensive zooms that cover wide to supertele ranges.) Interchangeable-lens cameras not only let you tailor your system to meet your focal-length needs, but also give you the option to choose lenses with other advantages, like a fast maximum aperture or high-end glass. Fixed-lens cameras are just that: fixed. If you're looking for a compact camera and minimal size is your ultimate concern, then a fixed-lens model may be your first choice; but for the ultimate in creative options, an interchangeable-lens model, whether DSLR or mirrorless, is the better choice.

6. SYSTEM & ACCESSORIES.

Whichever camera you choose, accessories like flash, lens adapters, microphones, GPS and more can make a big difference in not only the quality of your images and video, but also the pleasure of taking photos. It's worth looking at the system accessories offered by the manufacturer for the cameras you're considering (and at third-party options compatible with your system, too).

7. VIDEO. What started as a high-end feature on top DSLRs is now practically ubiquitous. Even entry-level cameras today can capture HD video, and many with sophisticated options like the ability to control frame rates for a cinematic look. One big difference to keep in mind,



SONY SLT-A37

however, is sound. Great video imagery becomes nearly impossible to watch if the sound is distractingly bad. If video is an important feature to you, choose a camera that has a stereo input for auxiliary mics so you can choose the right microphone for your recording environment. (To learn more about microphone types and when to choose them, see our DSLR Microphone Guide: www.dpmag.com/mics.)

8. IMAGE QUALITY. You'd be hard-pressed to find a digital camera from any of the major makers today that doesn't deliver sharp, beautiful shots. Still, it's worth mentioning that size does matter. All else being equal, the larger the sensor and larger the pixels, the better the image quality, especially in low light. Larger pixels are able to collect more light for a better signal-to-noise ratio. A corollary to this is that more megapixels doesn't necessarily translate into better images. Take two APS-C-sized

sensors, one 12 MP and the other 18 MP. To fit the extra 6 MP on the same-sized sensor, the pixels have to get smaller—something to consider.

9. VIEWFINDER. While the large monitors on the back of your camera are great for reviewing images, they're not always ideal when shooting. Many are actually quite difficult to use in bright outdoor conditions, making an eye-level viewfinder essential. If you shoot mostly indoors under controlled lighting, this may not be an issue, but most photographers are going to want the option of a viewfinder. All DSLRs have them, as do some mirrorless and fixed-lens compacts (though viewfinders are much rarer in the latter two categories). However, many mirrorless models offer an optional viewfinder that docks in the camera's hot-shoe. You're probably going to want one.

10. ERGONOMICS. I saved this for last, because while important, this is the most subjective of all of the camera characteristics we've considered. My hands are bigger or smaller than your hands, and that affects how comfortable a camera is to hold. The arrangement of buttons and control dials may fit me like a glove but seem misplaced to you. The only way you're going to know for sure whether you'll find using a camera to be a pleasure or a pain is to go handle it in person. And please be considerate of your local camera shop—if you use their staff time to help guide you to finding the right gear, at least give them a shot at making the sale rather than going straight to Google to find the cheapest price. You may save a few bucks online, but probably not enough to outweigh the benefit of having the knowledge and support of your local camera retailer.

BONUS TIP. Power! The Li-ion batteries used in most digital cameras are really good, providing at least a few hundred shots between charges. However, if you do a lot of traveling where access to recharging isn't always easy, consider one of the cameras that can accept common AA batteries, either as the primary power source or via an optional grip. We also recommend owning at least one spare battery for your camera system.

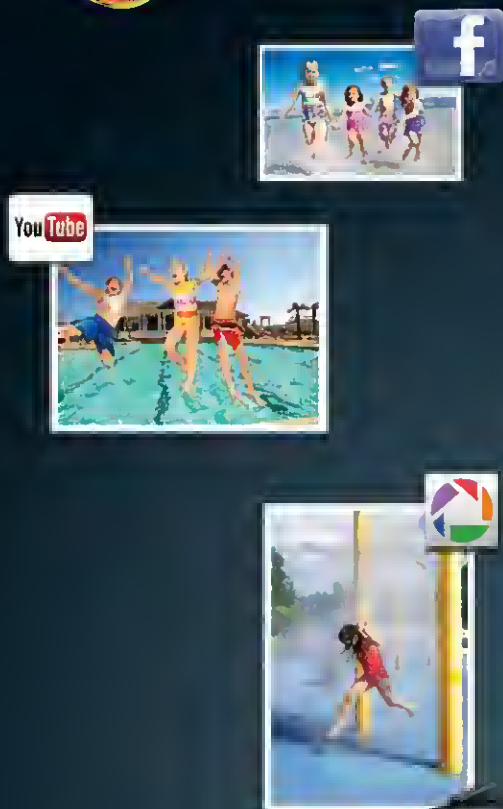
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NIKON D3200



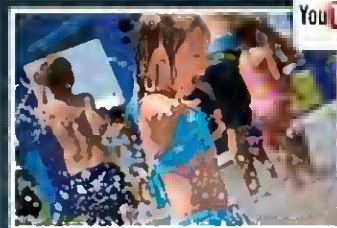
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SHOOT WOW.



NX20
Ultra Fast 1/8000 Shutter Speed

SHARE NOW.



NX1000
Instant Sharing Camera

create **wonder**



Striking a balance between resolution, performance and design the Samsung NX Series Smart Cameras unleash the photographer in all of us. Designed to deliver stunning 20.3 megapixel images and the NX20's 1/8000 shutter speed captures highly defined images in the blink of an eye. With built-in WiFi and apps you can also instantly upload to social network sites. Experience it now at samsung.com/nxsystem.

SAMSUNG

MIRRORLESS CAMERAS

INTERCHANGEABLE LENSES AND ADVANCED FEATURES IN ULTRACOMPACT BODIES | BY MIKE STENSVOED

CANON EOS M

Canon's long-anticipated mirrorless interchangeable-lens camera finally materialized in Summer 2012. The new EOS M is built around an 18-megapixel APS-C image sensor and DIGIC 5 processor (similar in performance to the new EOS Rebel T4i OSLR).

The EOS M has a new EF-M lens mount, which takes new EF-M lenses (of which there are two at introduction: the 22mm f/2.0 sold with the camera and an 18-55mm zoom). With the optional EF-EOS M adapter, the new camera can use the full range of EF and EF-S lenses for EOS OSLRs—more than 60 of them, from fisheye and superwide-angle to supertelephoto, including macro and tilt-shift lenses.

The EOS M has a versatile video mode, using the same Hybrid CMOS AF system to provide Movie Servo AF, with touch-screen AF when you want it. You can record 1080p full HD video with adjustable stereo sound using the built-in microphone or an optional external stereo mic via the camera's 3.5mm miniplug jack. Video is MPEG-4 AVC H.264, saved as MOV files. Estimated Street Price: \$799 (with 22mm EF-M lens).



STANDOUT FEATURE: Hybrid CMOS AF combines the best of phase-detection and contrast-based AF, all done right off the image sensor.



1. Images are stored on SD, SDHC or SDXC cards, including UHS-I (fast cards recommended). 2. The big, 3-inch touch-screen LCD monitor takes up most of the camera back and is used to make most camera settings and check images. There's no other viewfinder, even as an accessory, but the camera can be connected to an external monitor through its mini-HDMI jack. 3. The EOS M's hot-shoe provides E-TTL II flash control with dedicated Speedlite external flash units, including the new Speedlite 90EX designed for the M system.



INTRODUCED
7/2012

FUJIFILM X-PRO1

Fujifilm made a real splash in 2011 with the X100, a little gem with a great design, a unique hybrid viewfinder, a big APS-C image sensor and a built-in wide-angle lens. A year later, Fujifilm introduced the X-Pro1, a similar camera, but one that takes interchangeable lenses. Inside is a new 16.3-megapixel APS-C Fujifilm X-Trans image sensor, which features a unique RGB filter array that differs from conventional Bayer arrays by using a more random arrangement that positions red, green and blue pixels in every horizontal and vertical row. This minimizes moiré and false colors, allowing Fujifilm to do away with the sharpness-robbing optical low-pass filter required by Bayer-sensor cameras.

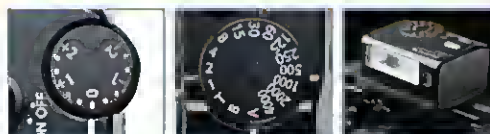
Like the X100, the X-Pro1 features a Hybrid Multi Viewfinder that lets you easily switch the eye-level finder between optical and electronic, as desired. Optical mode minimizes shutter lag and provides brighter viewing, while electronic mode provides a live-view image. Both display lots of information, including a virtual horizon, distance data and histogram. You also can use the crisp 3-inch LCO monitor for composing images.

A new Fujifilm X Mount provides for a wider opening and deeper mounting of the X-Pro1 lenses, minimizing the flange-back distance (the distance between lens mount and image plane) and sending light more directly to the pixels. Currently, three XF lenses are available for

the X-Pro1: 18mm F2 R wide-angle, 35mm F1.4 normal and 60mm F2.4 R macro. Estimated Street Price: \$1,699 (body only).



STANDOUT FEATURE: The beautiful, rugged and functional body of the X100, with interchangeable-lens capability.



1. Aperture rings can be set in precise 1/3-step increments. 2. Dials atop the camera provide direct setting of shutter speeds and exposure compensation, and resist inadvertent turning. 3. There's no built-in flash, but a slick dedicated unit is available.



INTRODUCED
1/2012

NIKON J2

Nikon entered the mirrorless interchangeable-lens marketplace last year with the Nikon I J1 and Nikon I V1 models, very compact cameras built around the same 10-megapixel CMOS sensor in a new CX format (with sensor dimensions of 13.2x8.8mm and a focal-length magnification factor of 2.7x). These cameras were the first to feature Nikon's new EXPEED 3 processing.

Now comes the first of the second-generation Nikon I cameras, the Nikon I J2. It's very similar to the J1, but features a higher-resolution, 3-inch LCD monitor, adds a Creative Mode to the Mode dial, adds two more color options (deep red and orange) and costs \$100 less.

Like all Nikon I models, the J2 features a hybrid phase-detection/contrast-detect AF system with phase-detection sensors right in the image sensor. And like all Nikon I models, the J2 can shoot full-resolution images at 10 fps with autofocus and 60 fps with focus locked. Motion Snapshot mode yields a frozen still image with a slow-motion movement sequence, with built-in audio soundtrack. All three cameras feature electronic shutters with a top speed of $1/6,000$ sec. (the V1 also has a mechanical shutter).

All Nikon I cameras can do 1920x1080 full HD at 60i and 30p, and 1280x720 HD video at 60p, with level-adjustable stereo sound via built-in microphones. (Only the V1 accepts an external mic, too.) There are also two slow-motion video modes: 640x240 at 400 fps and 320x120 at 1200 fps.

A new and very compact 11-27mm f/3.5-5.6 lens was introduced with the J2, bringing the Nikon I lens line to five, with focal lengths ranging from 10mm to 110mm (equivalent to 27mm to 297mm on a 35mm camera). Estimated Street Price: \$549 (with 10-30mm VR zoom).

OLYMPUS OM-D E-M5

Olympus' first mirrorless interchangeable-lens cameras were inspired by the company's popular PEN 35mm compact cameras of the 1960s. The new OM-D E-M5 was inspired by the popular OM-series 35mm SLRs of the 1970s, featuring a classic and functional design and an excellent 16.1-megapixel Micro Four Thirds image sensor.

Building on the FAST (Frequency Acceleration Sensor Technology) contrast-based AF system introduced in the PEN E-P3, the OM-D E-M5 doubles the speed, providing a shooting rate of 4.2 fps with 3D tracking AF that can follow a moving subject through X, Y and Z axes. The camera can do 9 fps in single-shot AF mode.

The E-M5 can record 1080 full HD video in program, shutter-priority, aperture-priority or manual mode. You can also apply special effects to your video in-camera. A built-in microphone provides stereo sound recording.

Perhaps the most rugged Micro Four Thirds camera, the OM-D E-M5 features a sturdy, lightweight magnesium-alloy body with dust- and splashproof sealing like Olympus' E-5 pro DSLR. While not all Micro Four Thirds lenses are splashproof, the new M.Zuiko Digital ED 12-50mm f/3.5-6.3 EZ kit zoom is, as are the FL-LN2 flash unit, optional HLD-6 Power Battery Grip and MMF-3 Four Thirds lens adapter.

Like all Micro Four Thirds System cameras, the OM-D E-M5 can use all Micro Four Thirds lenses, which currently number around 30, with 35mm-equivalent focal lengths of 14mm through 600mm. Adapters allow use of many other lenses, including the new MMF-3 adapter for regular Four Thirds System optics. Estimated Street Price: \$999 (body only).



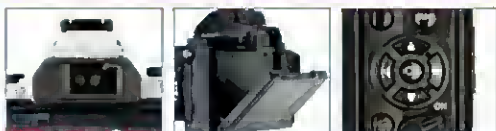
STANDOUT FEATURE: Very quick hybrid phase-detection/contrast AF.



1. The Mode dial adds a new Creative Mode. 2. Also introduced with the J2 is a new underwater housing, which is waterproof down to 40 feet. 3. The only button on the front of the camera is the lens-mount release.



STANDOUT FEATURE: Five-axis sensor-shift image stabilization for still and video shooting with all lenses, which counters horizontal and vertical shift, plus roll, yaw and pitch motions.



1. A new 1,440,000-dot electronic viewfinder provides convenient eye-level operation. 2. The tilting 3-inch OLED monitor offers touch-screen AF and easy odd-angle shooting. 3. The Mode dial provides easy access to shooting modes, Art Filters, video and more.



INTRODUCED
8/2012



INTRODUCED
2/2012



PANASONIC LUMIX DMC-GF5

The replacement for Panasonic's GF3 entry-level "pocket" Micro Four Thirds model, the new GF5 improves on its predecessor in a number of ways, including a higher-resolution LCD, higher ISD capability, more effects filters, an improved grip and additional video capabilities with a built-in stereo microphone.

Sharing its predecessor's 12.1-megapixel resolution, the GF5 nonetheless features a new Live MDS sensor that does better at higher ISD settings (which now go to 12,8DD), along with a revamped Venus Engine processor with improved noise-reduction capabilities. Panasonic's quick and accurate Light Speed contrast-based AF is enhanced by touch-screen control with the 3-inch LCD monitor.

Less experienced users will love iA (Intelligent Auto) Plus mode, which automatically sets everything for best results with a wide range of scenes. You also can adjust the settings, if desired, and apply a variety of styles and effects. The touch-screen LCD makes it easy to set camera functions, focus, zoom power-zoom lenses and even trip the shutter.

While the GF3 could only do AVCHD video, the GF5 also can do MP4. A new stereo microphone replaces the GF3's mono mic. The GF5 offers both continuous AF and touch AF for video shooting. Estimated Street Price: \$519 (with 14-42mm power zoom).



STANDOUT FEATURE: A good feature set in a very pocketable package.



1. The GF5 is available in several colors, including black and red. 2. You can use SD, SDHC and SDXC media, including UHS-I cards—good news for video fans. 3. There's a handy built-in pop-up flash unit, but the GF5 doesn't accept accessory flash units.



PANASONIC LUMIX DMC-G5

The first large-sensor interchangeable-lens mirrorless camera was Panasonic's Lumix DMC-G1, introduced in 2DD8. Now we have the fourth generation of that pioneering Micro Four Thirds System device (there was no G4 model). The Lumix DMC-G5 shares the "mini-DSLR" form factor of its predecessors, but incorporates a new 16.05-megapixel Digital Live MDS image sensor that works with the four-CPU Venus processing engine to enhance image quality, video and overall camera performance.

Maximum frame rate is 3.7 fps with live view, 6 fps with mechanical shutter (and single-shot AF, but no live view), and 2D fps with electronic shutter and no live view (full resolution for the first 2 fps, 4 megapixels for 2D fps). Light Speed contrast-based AF is very quick, and you can preselect an AF area, or choose one on-the-fly in still or video mode just by touching the desired area on the LCD monitor. The G5 can shoot 1080 full HD in AVCHD and MP4 formats, with stereo sound via a built-in microphone.

Panasonic offers 17 lenses for its Lumix DMC mirrorless cameras, from a 7-14mm superwide-angle zoom to a 100-300mm tele-zoom, including an 8mm fisheye and a 3D lens. This gives the user 35mm-camera equivalent focal lengths of 14mm through 600mm. Estimated Street Price: \$799 (with 14-42mm zoom).



STANDOUT FEATURE: The best image quality in Panasonic's G-series.



1. The built-in EVF provides eye-level viewing for still and video recording. 2. The 3-inch LCD monitor tilts and swivels for easy odd-angle shooting. 3. While the card slot accepts SD, SDHC and SDXC cards, best performance comes with the fastest, most recent cards.

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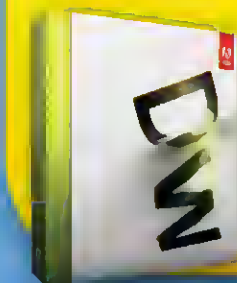


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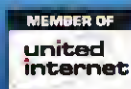
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PANASONIC LUMIX DMC-GX1

Panasonic's premium "flat"-style mirrorless model, the GX1 features a handsome, comfortable body and ergonomic controls. It's "a cut above" the GF-series flat models. Inside the fine body are a number of good features, including a 16-megapixel Live MOS image sensor and Panasonic's Light Speed contrast-based AF. The GX1 can shoot up to 4.2 fps at full resolution (3 fps with live view and AF) and 20 fps at 4 megapixels. Images are saved on SO/SOHC/SOXC cards, and it's UHS-I-compatible. Intelligent Auto Plus mode handles everything for beginners (but makes it easy to experiment), while the camera also provides full control for experienced shooters.

The GX1 can do two flavors of 1080 full HD video: AVCHD and MP4. Full-time AF is available, and you can "rack focus" by touching the spot on the LCD monitor on which you wish to focus. Built-in microphones provide stereo sound.

Like all Micro Four Thirds System cameras, the GX1 can use all Micro Four Thirds lenses, plus pretty much any lens for which an adapter is available. Current lenses range from a 7-14mm zoom to a 100-300mm zoom (including a fisheye and a 3D lens) for 35mm-equivalent focal lengths from a 14mm ultra-wide-angle to a 600mm supertelephoto. Estimated Street Price: \$549 (body only).



STANDOUT FEATURE: Premium design and construction.



1. The hot-shoe accepts an accessory external flash unit or the optional DMW-LVF2 tilting, eye-level Live View Finder. 2. Finely machined, the mode dial provides direct setting of several items. 3. The built-in pop-up flash provides handy fill light for nearby subjects, day or night.



PENTAX K-01

Pentax does mirrorless a bit differently. After introducing the smallest interchangeable-lens mirrorless model (with the smallest image sensor) in the Q, they followed up with the largest mirrorless model without a built-in eye-level EVF in the K-01. But the K-01 takes the full line of Pentax K-mount SLR lenses with no adapter needed, features a cool retro-meets-contemporary body by famed designer Marc Newson and produces great image quality courtesy of a big, 16.3-megapixel APS-C CMOS image sensor.

While most mirrorless cameras suffer from the double whammy of energy-eating, full-time live-view operation and a smallish battery, the K-01 uses the same 0-LI90 lithium-ion battery as Pentax's flagship K-5 OSLR, so it gets more shots per charge than most mirrorless cameras (over 500 with our test camera). The K-01 also features a 3-inch LCD monitor like the K-5, although the K-01 doesn't share the K-5's weather-resistance.

The K-01 actually has better video capabilities than the K-5 OSLR, able to shoot 1080 full HD at a variety of frame rates (the K-5 can just do 25 fps). Twin built-in microphones record stereo sound, and there's a jack for an external mic. Video format is MP4. You can adjust shutter speed and aperture when desired, use the camera's sensor-shift image stabilization when shooting video and do clips up to 25 minutes long. Estimated Street Price: \$750 (body only).



STANDOUT FEATURE: All Pentax K-mount lenses can be used, no adapter required (plus, Pentax medium-format and screw-mount lenses, via adapters).



1. You can save images on SD, SDHC or SDXC memory cards in RAW (DNG) or JPEG format (or both). 2. A built-in flash can be popped up when needed. 3. The Pentax-DA 40mm f/2.8 XS pancake lens (also designed by Marc Newson) keeps overall package size down.

Don't Risk Losing That Perfect Shot



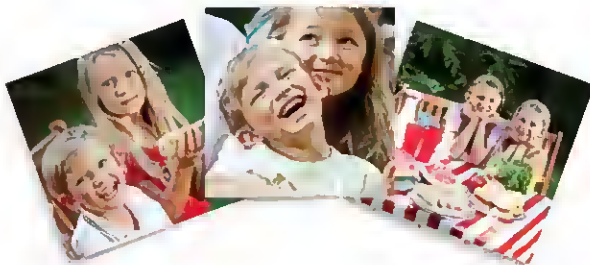
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SAMSUNG NX20

Samsung's mirrorless cameras all feature big APS-C image sensors and are available in "mini-DSLR" and "flat" form factors. The flagship NX20 is the mini-DSLR type, featuring a built-in eye-level electronic viewfinder to complement the bright, tilting/rotating 3-inch AMOLED monitor.

The new-generation NX cameras—the NX20, NX210 and NX1000—share the same Samsung 20.3-megapixel APS-C CMOS image sensor, most shooting features and built-in Wi-Fi capability. You don't need a Wi-Fi card or other device to upload your images to a social-networking site or compatible smartphone, or to email them; all you need is a Wi-Fi access point.

The NX20's video features include full 1080 HD, plus a widescreen 1920x810 format. There's also a Multi Motion feature that lets you produce clips at one-quarter to 20 times normal speed. Sound is stereo via a built-in microphone, and there's a jack for an external mic.

A top shutter speed of $\frac{1}{8000}$ sec. with a very brief lag, along with 8 fps shooting at full resolution, puts the NX20 right in there with the top DSLRs in terms of shooting speed. It can shoot up to 30 fps at reduced 5-megapixel resolution.

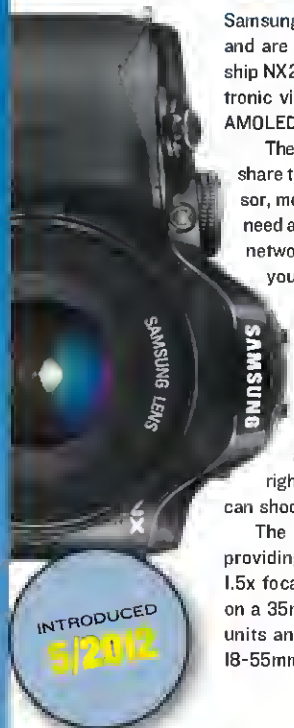
The NX20 user manual lists nine lenses for the NX cameras, providing focal lengths from 16mm to 200mm (with the sensor's 1.5x focal-length factor, this is a range equivalent to 24-300mm on a 35mm camera or full-frame DSLR). There are also two flash units and a GPS accessory. Estimated Street Price: \$1,099 (with 18-55mm zoom).



STANDOUT FEATURE: Built-in Wi-Fi in a DSLR-like package.



1. In iFunction 2 mode, you can make many camera settings using the lens' focusing ring. 2. Simply press this button to start recording video. 3. The depth-of-field preview button can be programmed for other functions, including activating/deactivating the RAW + JPEG feature.



INTRODUCED
5/2012

SAMSUNG NX210

The middle model in Samsung's Wi-Fi NX lineup, the NX210 offers the same 20.3-megapixel image sensor, built-in Wi-Fi capabilities and shooting features as its siblings. Minimally larger than the NX1000, the NX210 features a more durable all-metal body with a similar "flat" form factor. Wi-Fi capabilities include social sharing, email, MobileLink, Remote Viewfinder, SkyDrive, Auto Backup, TV Link and Wi-Fi Direct.

As in the other Wi-Fi NX models, Smart Panel provides an intuitive interface that offers easy access to key features. Smart Auto mode analyzes scenes and adjusts shutter speed, aperture, metering, white balance and exposure compensation for optimal results. Or you can control anything/everything yourself. Lens Priority mode lets you make many settings via the focusing ring of i-Function lenses.

The NX210 shares the NX20's bright 3-inch AMOLED monitor, but this one doesn't tilt or rotate. As with the NX1000,

there's no eye-level EVF, nor is one available as an option.

The same 221-segment metering and 15-point contrast-based AF (35 points in close-up mode) systems are shared by the three cameras.

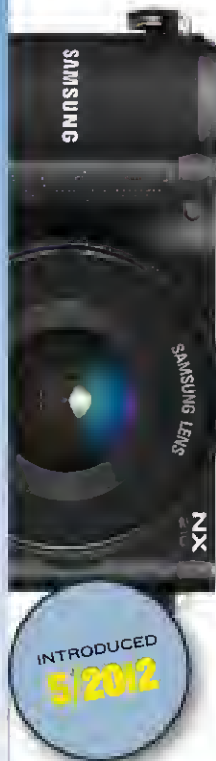
The NX210 uses the same shutter (top speed $\frac{1}{8000}$ sec.) and battery as the NX1000 (Samsung-rated at 330 shots in the NX210). The camera is bundled with the same 18-55mm kit zoom as the NX20, featuring Optical Image Stabilization (the NX1000's 20-50mm kit lens doesn't have O.I.S.). Estimated Street Price: \$899 (with 18-55mm zoom).



STANDOUT FEATURE: Built-in Wi-Fi in a premium compact design.



1. NX cameras don't have sensor-shift image stabilization, but several of the lenses, including the 18-55mm kit zoom, have D.I.S. (Optical Image Stabilization). 2. The accessory shoe can hold an external flash, a GPS unit or an external stereo microphone. 3. The internal Wi-Fi antenna is on the bottom of the NX210.



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5/2012



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SAMSUNG NX1000

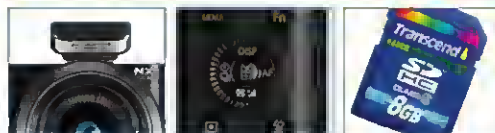
The most compact member of Samsung's current NX family, the NX1000 shares the 20.3-megapixel image sensor and built-in Wi-Fi capability of the NX20 and NX210, but measures just 4.5x2.5x1.5 inches and weighs just 7.8 ounces. The camera also carries the lowest price of the three, but provides most of the same shooting features.

Like its NX20 and NX210 brethren, the NX1000 can shoot full-res images at 8 fps and 5-megapixel images at 10, 15 and 30 fps (maximum 30 shots). You can easily shoot 2D and 3D panoramas, apply effects (including Select Color, which desaturates all colors except the selected red, green, blue or yellow) and activate Smart Range to get better detail from bright through dark areas. Press the Fn button and Select Picture Wizard, and you can apply nine effects, adjusting color saturation, sharpness and contrast for each, as desired.

In keeping with its very compact design, the NX1000 doesn't have an eye-level EVF, but it does have a 3-inch LCO monitor that can display lots of items, including grid lines, a histogram, a distance scale and a level gauge. There's no built-in flash, but the camera comes with a compact external unit that attaches to the hot-shoe. The compact lithium-ion battery is good for about 320 shots per charge. Estimated Street Price: \$699 (with 20-50mm zoom).



STANDOUT FEATURE: Built-in Wi-Fi in a very compact package.



1. Compact accessory flash is unobtrusive and adds to the camera's versatility.
2. Despite the NX1000's tiny size, there's a mode dial that lets you directly set a number of functions.
3. The battery and SD/SDHC/SDXC memory card share a compartment on the base of the camera.



SONY NEX-F3

Taking over from the NEX-C3 as the entry-level model in Sony's mirrorless line, the NEX-F3 incorporates a big, 16.1-megapixel APS-C HD CMOS sensor that delivers excellent image quality and video. Besides simple operation, features include Auto HDR, Anti-Motion Blur, Sweep Panorama, 3D Sweep Panorama, focus peaking (for easy manual focusing) and 15 in-camera effects.

Sony's By Pixel Super Resolution Technology (introduced in some of its Cyber-shot consumer digital cameras, then appearing in the SLT-A57) allows for 2X digital zooming with nearly the image quality of an optical zoom. This effectively increases the focal-length range of the kit zoom (and any other lens used on the camera).

Auto Portrait Framing uses face-detection technology and the compositional "rule of thirds" to identify the subject's face and crop the image with good portrait framing (leaving more room in the direction the subject is looking, for example), while maintaining the original shooting resolution despite the crop, thanks to the 8x Pixel Super Resolution Technology. (The original uncropped image is also saved.) Video capabilities include full 1080 HD in AVCHD and MP4, with stereo sound via a built-in or an external microphone.

The NEX-F3 can use all NEX lenses and Sony A-mount DSLR lenses via adapter. The LA-EA2 adapter even includes its own Translucent Mirror phase-detection AF system that works with the A-mount lenses. Estimated Street Price: \$599 (with 18-55mm zoom).



STANDOUT FEATURE: Superior Auto Mode and Auto Portrait Framing help novices get great images in a wide range of shooting situations.



1. Despite the camera's tiny size, it has a built-in pop-up flash unit.
2. The 3-inch LCO monitor tilts 180°, handy for odd-angle shooting and self-portraits.
3. The camera accepts an electronic eye-level viewfinder, a compact external stereo microphone and an external flash unit (but not all at once).



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SONY NEX-6

While those moving up to a mirrorless interchangeable-lens camera from a point-and-shoot are happy to use the LCD monitor as their composing device, some longtime DSLR (and film SLR) users find it awkward. The NEX-6 (like the flagship NEX-7) has a built-in, eye-level, 2.36-million-dot OLED Tru-Finder to complement its 3-inch tilting LCD monitor, providing convenient eye-level shooting when you want it. A new hybrid AF system with 99 phase-detection sensors at the focal plane working with 25-area contrast AF optimizes AF performance in a wide variety of shooting situations.

The NEX-6 is about the size of the NEX-7 and shares many of its fine features. But the NEX-6 has a 16.1-megapixel Exmor APS-C sensor in place of the flagship's 24.3-megapixel sensor, goes to ISO 25,600 (vs. 16,000 for the 7) and adds built-in Wi-Fi for linking to TVs, PCs and smartphones. It also adds a mode dial for easy navigation between shooting modes. Like the NEX-7, the NEX-6 has a built-in pop-up flash.

The NEX-6 can shoot still images at up to 10 fps with continuous tracking AF. It also can shoot full HD 1080 AVCHD video at 60p and 24p, as well as MP4 1080, 720 and 480 video at 30p—all with continuous AF.

The NEX-6 can use all Sony E-mount lenses and (via adapter) Sony A-mount DSLR and legacy Konica Minolta Maxxum lenses, but it's especially nice with the new E-mount 16-50mm f/3.5-5.6 lens, which features Optical SteadyShot image stabilization and is just 1 1/4-inches thick when retracted—a pocketable package.

Like to focus manually? The peaking feature outlines in-focus edges in your choice of white, red or yellow, making it easy to see where focus is in the image. Like the camera to do it all? You can use iAUTO and Superior Auto, as well as program, shutter- and aperture-priority AE. Estimated Street Price: \$850.



STANDOUT FEATURE: The functionality, performance and control of a DSLR in a compact system camera.



1. The built-in, 2.36-million-dot Tru-Finder EVF provides convenient eye-level viewing when desired. 2. Odd-angle shooting is easy thanks to the tilting, 3-inch LCD monitor. 3. There's even a built-in pop-up flash unit.

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STANDOUT FEATURE: Hybrid AF and Wi-Fi connectivity come to NEX.



1. Besides the original NEX "three-buttons-and-a-dial" controls, the NEX-5R adds another dial atop the camera to enhance operation. 2. The accessory shoe accepts an optional OLED eye-level viewfinder for eye-level shooting or the supplied external flash unit. 3. The single memory card slot accepts SD/SDHC/SDXC cards and Sony Memory Stick PRO/PRO-HG Duo media.

SONY NEX-5R

We're into the third generation of NEX now, with Sony's successor to the NEX-5N, the NEX-5R, bringing a number of improvements on the earlier model. First, there's the new Fast Hybrid AF system (also used in the new NEX-6): 99 phase-detection AF points at the focal plane complement the 25-area contrast AF system for better AF performance in a wide range of shooting situations. Where the NEX-5N could shoot at 10 fps with focus locked, the NEX-5R can do it with continuous autofocus.

The new NEX-5R has built-in Wi-Fi 802.11 capability (lacking in its predecessor). Both cameras have 3-inch touch-screen monitors, but the new camera's monitor also provides touch-shutter capability, and tilts up to 180° for easy self-portraits. Both cameras have 16.1-megapixel Sony Exmor HD APS-C image sensors.

Video capabilities include AVCHD full HD 1080 video at 60p and 24p, as well as MP4 1080, 720 and 480 at 30p, all with continuous AF and stereo sound via a built-in microphone or an optional external mic.

The NEX-5R also adds Clear Image Zoom and Auto Portrait Framing. Thanks to Sony's By Pixel Super Resolution Technology, the camera provides up to a 2X digital zoom in 0.1X increments with nearly the optical quality of an optical zoom, effectively doubling the focal length of the 18-55mm Optical SteadyShot kit zoom (or any other lens). Using face-detection technology and the compositional rule of thirds, Auto Portrait Framing crops an image to a pleasing portrait, framing and processing the new image to the original shooting resolution, again thanks to By Pixel Super Resolution Technology. List Price: \$749 (with 18-55mm zoom). DP



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CANON EOS 5D MARK III

The EOS 5D Mark III's new 22.3-megapixel Canon full-frame CMOS sensor provides more pixels than any other Canon DSLR, yet offers a good balance between resolution, high-ISO performance and shooting speed. A DIGIC 5+ processor (17 times more powerful than the DIGIC 4 in the 5D Mark II) makes possible the implementation of new noise-processing algorithms, on-the-fly lens chromatic-aberration correction and an improved video codec. The new sensor and processor allow an ISO range of 100-25,600, expandable to 50-102,400.

Featuring the same 61-point AF system as the new flagship pro EOS-1D X and the ability to shoot those files at 6 fps, the 5D Mark III can handle action as well as static subjects. Canon's 63-zone IFCL metering system takes into consideration brightness, color and data from each of the AF system's 61 points to provide good exposures in a wide range of shooting situations.

Of course, what "made" the 5D Mark II was its video capabilities. The Mark III has better ones. The new camera can do full HD 1080p video at 30 fps and 24 fps, with options for 720p and 480p, as well. You now can shoot using All-I or IPB compression (the former better for editing, the latter providing three times the recording time). You also can embed timecode for easy syncing of multicamera footage and adjust the sound level while shooting.

Like all full-frame EOS cameras, the 5D Mark III can use all Canon EF lenses, which currently range from an 8-15mm fisheye zoom and a 14mm superwide-angle to an 800mm supertelephoto, including true macro lenses and manual-focus TS-E tilt-shift optics. (And, like other full-frame EOS cameras, it can't use EF-S lenses, which were designed specifically for the smaller APS-C sensors and would vignette if used on a full-frame camera.) Estimated Street Price: \$3,499 (body only).

CANON EOS-1D X

Canon has long produced two versions of its flagship EOS-I-series pro DSLRs: an EOS-I model with an APS-H (1.3x crop) sensor and high frame rate, and a high-megapixel, full-frame model with even better image quality. Now, Canon has merged the I-series into a single model: the 18.1-megapixel, full-frame EOS-1D X, which can shoot full-res images at up to 14 fps. That rate is for JPEGs, with the mirror locked up (no AF). But it also can do full-res RAW (and JPEG) images at 12 fps with phase-detection AF for each frame—faster than the recently discontinued 16-megapixel APS-H EOS-1D Mark IV. Helping to make the EOS-1D X Canon's speed champ are two new-generation DIGIC 5+ processors, each 17 times more powerful than the DIGIC 4s used in the previous I-series generation.

An all-new AF system features 61 points covering more of the image frame than its predecessor. Forty-one of the points are cross-types when using most lenses of f/4 or faster, and 20 are cross-types with most lenses of f/5.6 or faster (none were cross-types at f/5.6 with previous I-series cameras).

The metering system is also all-new, featuring a 100,000-pixel RGB sensor and its own dedicated DIGIC 4 processor. These features enhance accuracy and enable an innovative new feature called EOS iTR (Intelligent Tracking and Recognition), which uses color and face-detection capabilities to improve tracking performance when the 1D X is set to autofocus using all 61 AF points.

Video features are similar to those in the new EOS 5D Mark III: 1080p at 30 fps, 25 fps and 24 fps, as well as lower-res options, plus stereo sound with volume adjustable during recording. Estimated Street Price: \$6,799 (body only).



STANDOUT FEATURE: The successor to the groundbreaking EOS 5D Mark II is better in all respects.



1. Dual slots allow use of CompactFlash and SD/SDHC/SDXC media.
2. A new headphone jack lets you monitor audio during video recording and adjust it throughout 64 steps.
3. The 5D Mark III uses the same LP-E6 lithium-ion battery as the 5D Mark II—and gets even more shots per charge.



STANDOUT FEATURE: 12 fps at 18.1 megapixels, with AF for each frame.



1. The big, 3.2-inch LCD monitor is great for video shooting, but doesn't tilt or swivel.
2. While previous I-series EOS DSLRs had slots for CompactFlash and SD cards, the X has two CF slots, and it's compatible with UDMA 7 (recommended for high-speed still and video shooting).
3. Inside the extremely rugged pro body is a shutter tested to 400,000 cycles.



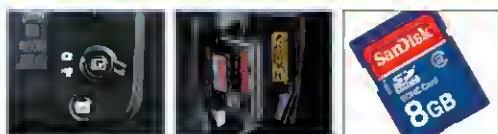
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STANDOUT FEATURE: The most megapixels in a DSLR.



1. Like the flagship D4, the D800 can stream uncompressed 8-bit, 4:2:2 full HD video to a display or an external digital recording device via its HDMI port. 2. Dual card slots let you save files on CompactFlash (including UDMA-7-compatible) and SD/SDHC/SDXC (including UHS-I) media. 3. The optional MB-MD12 Multi-Power Battery Pack increases shot capacity and ups the frame rate from 4 fps to 6 fps in cropped 15.4-megapixel DX format.



STANDOUT FEATURE: Can shoot up to 11 fps at 16.2 megapixels.



1. The D4 is the first DSLR to accept the new superquick XOD memory cards—it has an XOD slot and a CompactFlash slot. 2. Nikon's most rugged DSLR body ever contains a shutter tested to 400,000 cycles. 3. The new battery is CIPA-rated at 2,600 shots per charge vs. 4,200 for the D3S battery, but the D4's main competitor's battery is rated at 1,220 shots per charge, so that's still very good.

NIKON D800

Nikon's full-frame D800 offers a great mix of image quality (even at high ISO settings), AF performance, ruggedness and price. With 50% more pixels than Nikon's longtime flagship D3X SLR, the 36.3-megapixel D800 nonetheless costs less than half as much. The D800 set a new RAW image-quality standard at DxOMark.com with a score of 95 (previous top score: 89, by a \$40,000 80-megapixel medium-format back). The D800E model topped that with a 96—the E model negates the low-pass anti-aliasing filter needed by most Bayer-array DSLRs.

Amazing image quality aside, the D800 is a high-performance shooting machine, with the same AF and metering systems as Nikon's new flagship pro D4 model. While the D800 body isn't quite as rugged as the flagship D4, it still features a sturdy, yet lightweight magnesium-alloy chassis with extensive weather- and dust-proofing, plus a precision shutter with a top speed of $\frac{1}{8000}$ sec. and tested to 200,000 cycles. The bright, full-frame, glass pentaprism optical SLR viewfinder shows 100% of the actual image area, while the big, 3.2-inch LCD monitor provides efficient live-viewing.

The D800 can do 1080p full HD video at 30 fps and 24 fps, and 720p video at 60 fps and 30 fps, in H.264/MPEG-4 AVC (MOV) format. B-frame compression provides clip lengths of up to 29 minutes, 59 seconds. A built-in microphone supplies mono sound, and there's a jack for an external stereo mic. The big full-frame sensor produces cinematic selective-focus control and much better low-light capability than conventional pro camcorders. You can shoot videos with virtually all Nikkor lenses (DX lenses only in DX crop mode, others in FX or DX mode), providing great focal-length versatility. Estimated Street Price: D800 (\$2,999, body only); D800E (\$3,299, body only).

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NIKON D4

Nikon's new flagship pro DSLR, the D4 improves on its D3S predecessor in almost every area: It has more megapixels, shoots faster, goes to higher ISOs (with better image quality at each setting), and has better AF performance and video capabilities.

A new full-frame, 16.2-megapixel CMOS image sensor combines with new EXPEED3 processing to provide a normal ISO range of 100-12,800 (expandable to 50-204,800), plus shooting rates of 10 fps with AF for each shot or 11 fps with focus and exposure locked at the first frame. The AF system still has 51 points, but is faster and more responsive, and now works with lenses or lens/converter combos as slow as f/8. A new metering system features a 91,000-pixel RGB 30 Color Matrix Metering III sensor and Nikon's advanced SRS (Scene Recognition System).

The D4 can shoot 1080p full HD video at 30 fps and 24 fps, and 720p HD at 60 fps and 30 fps, in MOV format with H.264/MPEG-4 AVC compression and full-time Servo AF, if desired. Like the new D800, the D4 can stream uncompressed full HD video to an external monitor or recording device. You can record video in full-frame, DX (APS-C) or 2.7x crop modes, all with 16:9 full HD resolution. A built-in microphone records mono sound, or an optional external stereo mic can be used. The D4 can do time-lapse at 24-36,000X, saving the images as a video file.

You can use pretty much all F-mount Nikon lenses for still and video photography with the D4, the AF-S and AF-I G and D lenses providing all camera features. When a DX lens is used, the camera automatically crops to DX format (6.8 megapixels) to avoid vignetting. (The D4's chief rival can't use its manufacturer's APS-C lenses at all.) Estimated Street Price: \$5,999 (body only).

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SIGMA SD1 MERRILL

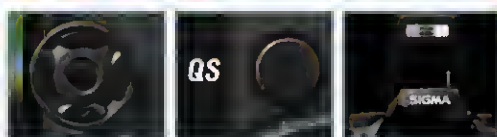
Sigma is the only camera maker to offer the unique Foveon X3 image sensor, which stacks pixels in three layers so that every pixel site records all three primary colors of light: blue (in the top layer), green (in the middle layer) and red (in the bottom layer). The Bayer-array sensors used in other DSLRs record just one color at each pixel site, producing the missing colors via proprietary interpolation of data from neighboring pixels. That results in moiré and other artifacts, which requires use of an image-blurring, anti-aliasing filter over the sensor. The Foveon sensor doesn't need the blurring filter, so it produces higher resolution than Bayer sensors of similar horizontal-by-vertical pixel count.

The SD1 Merrill (named after the late co-creator of the Foveon sensor) eliminates the main drawback of the original SD1—the Merrill has a very competitive price. Besides its sensor and image quality, the SD1 Merrill's best feature is the wide selection of lenses from which users can choose. Sigma is best known as a lens manufacturer and offers more than 40 for the SD1. These range from a 4.5mm circular fisheye and an 8-16mm superwide zoom to an 800mm f/5.6 supertelephoto and the world's fastest 500mm, the 200-500mm f/2.8 zoom. Many feature Sigma's OS optical image-stabilizing system. With the camera's APS-C sensor, each lens frames like a lens 1.5x its focal length on a 35mm camera, so 35mm camera effective focal lengths of 12mm through 1200mm are available (plus the 6.75mm-equivalent circular fisheye).

The SD1 body is rugged (it's the first splash-proof Sigma DSLR) and straightforward, designed for shooting still photos efficiently. There's no video, or even live-view capability, but a bright pentaprism eye-level viewfinder shows 98% of the actual image area. There's a 3.0-inch LCD monitor for playing back images. Estimated Street Price: \$2,299 (body only).



STANDOUT FEATURE: The unique, high-resolution Foveon X3 image sensor.



1. Twin control dials provide direct setting of many things, including mirror prelock. 2. The FUNC and QS buttons provide access to quick menus through which a variety of features can be set, including one of three RAW file sizes. 3. While cameras in this category usually lack a built-in flash unit, the SD1 has one.

SONY SLT-A99

In 2010, Sony introduced the first cameras with its Translucent Mirror Technology (TMT)—the entry-level SLT-A55 and A33. A fixed translucent mirror transmits most of the light to the image sensor while simultaneously directing a portion of it up to the camera's phase-detection AF sensor. While conventional DSLRs must alternate focusing and exposing, since the SLR mirror must be down for the former and up for the latter, TMT allows the camera to continuously autofocus and expose at the same time. This speeds up operation, minimizes moving parts and vibration, and provides continuous quick phase-detection autofocus for still and video shooting.

Previous TMT cameras used APS-C sensors. Now, Sony has introduced the first full-frame TMT camera, the flagship SLT-A99. It features a new 24.3-megapixel, full-frame Sony Exmor HD CMOS sensor and 14-bit capture (another first for the SLT line) and a new twist on the TMT AF system—besides the standard 19-point TMT AF system, there are also 102 phase-detection AF points on the image sensor itself. This provides more accurate tracking of fast-moving subjects against complex backgrounds. An in-body AF Range Control further helps AF speed and accuracy.

An excellent 2.36-million-dot OLED electronic viewfinder provides eye-level viewing for stills and video, while the 3-inch LCD tilts and rotates for easy odd-angle shooting.

The A99 is the first full-frame DSLR to do full HD 1080 AVCHD video at 60p (a capability recently introduced in some Sony APS-C cameras) as well as 24p; it also does 1080, 720 and 480 video at 30p in MP4 format. You get continuous phase-detection AF for video, convenient eye-level viewing when desired and stereo sound via a built-in mic or an optional external mic. Full-res, 24.3-megapixel still images can be shot at up to 6 fps (cropped APS-C-format images at up to 10 fps). Estimated Street Price: \$2,800 (body only).



STANDOUT FEATURE: The first full-frame Translucent Mirror Technology camera.



1. The A99's 2.36-million-dot OLED EVF eliminates the need for a bulky glass pentaprism. 2. Dual card slots let you save files on SD/SDHC/SDXC cards or Sony Memory Stick PRD/PRD-HG Duo media. 3. The big translucent mirror doesn't move, so there are no mirror vibrations, and you get full-time phase-detection AF, even for movies.

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CANON EOS REBEL T4i

Canon's EOS Rebel DSLRs are entry-level models, the new Rebel T4i being the 10th member of a line that began when the original Digital Rebel became the first DSLR to sell for under \$1,000 in 2003. Not so ironically, the new camera—despite much greater capabilities and the rising yen vs. dollar—costs less than that first “affordable” DSLR.

The EOS Rebel T4i is the top model in the Rebel line, sharing 18-megapixel resolution with a number of other EOS cameras, but featuring a new Canon CMOS sensor with phase-detection AF sensors embedded among its pixels. These are part of a new Hybrid CMOS AF system, which provides both contrast-based and phase-detection AF for live-view and video shooting—a first for a Canon DSLR. The system works with all EF lenses, but is especially quiet and smooth coupled with the new STM lenses, which are ideal for video. For non-live-view shooting using the eye-level optical viewfinder, the T4i features a phase-detection AF system similar to that of the EOS 60D, with nine AF points, all cross-types. This is the most advanced AF sensor ever for a Rebel camera.

A powerful DIGIC 5 processor helps make possible such features as 5 fps shooting, a normal ISO range of 100-12,800 (expandable to 25,600), reduced noise in JPEGs and movies, lens chromatic aberration correction and, of course, the new AF system.

Video capabilities include full 1080 HD at 30 or 24 fps and 720 HD at 60 fps, with stereo sound via a built-in microphone or an optional external mic, and adjustable sound level. The Video Snapshot feature automatically combines 2-, 4- and 8-second clips into a single video file, perfect for sharing. Movie Servo AF provides continuous focus tracking for moving subjects. The 3-inch touch-screen LCD monitor makes it easy to shoot video, and you even can focus by touching the appropriate spot on the screen. Estimated Street Price: \$849 (body only).

NIKON D3200

Nikon is at it again. When the D3100 entry-level model came out, it had more megapixels (16.2) than any Nikon DSLR but the \$8,000 flagship 24.5-megapixel pro model. Now comes the D3200, with 24.2 megapixels on its DX (APS-C)-format CMOS sensor—currently, the most in an entry-level DSLR, and right there with Sony's A77 and A65 for most in any APS-C DSLR. You also can shoot 13.5- and 6-megapixel JPEGs if you don't need all that resolution (and the accompanying huge image files); NEF (RAW) files can be shot only at 24.2 megapixels.

Nikon's EXPEED 3 processing engine (same as that used in the pro D4) provides the power to deliver excellent image quality and the speed to allow for 4 fps shooting at 24 megapixels. Normal ISO range is 100-6400, expandable to 12,800.

Image quality aside, the D3200 is a good entry-level DSLR, compact, lightweight, durable and very easy to use. An on-screen Guide Mode helps newcomers learn as they shoot, and there are enough features to keep experienced photographers happy.

The D3200 can do 1080 full HD video at 30 and 24 fps, as well as 720 HD at 60 fps. There's a built-in mono microphone and a jack for an optional stereo mic. Contrast-based full-time Servo AF tracks moving subjects, and Face Detection AF focuses on faces in a scene.

Like all Nikon entry-level DSLRs, the D3200 can use pretty much all Nikon F-mount lenses, but autofocuses only with those that contain an AF motor (the body doesn't have an AF motor), the AF-S and AF-I lenses. Estimated Street Price: \$699 (with 18-55mm VR zoom).



STANDOUT FEATURE: The first Canon DSLR with continuous AF for video.



1. Set exposure modes directly using the mode dial. 2. The touch-screen LCD tilts and swivels for easy viewing. 3. The memory card slot accepts SD, SDHC and SDXC media, including UHS-I.



STANDOUT FEATURE: 24-megapixel resolution, the most in an entry-level DSLR.



1. The hot-shoe will accept Nikon i-TTL Speedlights or a stereo microphone. 2. Images are saved on SD, SDHC or SDXC cards; the camera accepts Eye-Fi cards, as well. 3. The accessory terminal accepts an optional remote control or GPS unit.





STANDOUT FEATURE: Weather-, dust- and cold-proof (as are some of the lenses).



1. The K-30 has a bright 100% pentaprism finder rather than the dimmer pentamirror type generally found on cameras in this price range. 2. Images can be stored on SD, SDHC or SDXC media. 3. The camera comes with a rechargeable lithium-ion battery, but you can use four AAs via an optional adapter and greatly increase the number of shots.

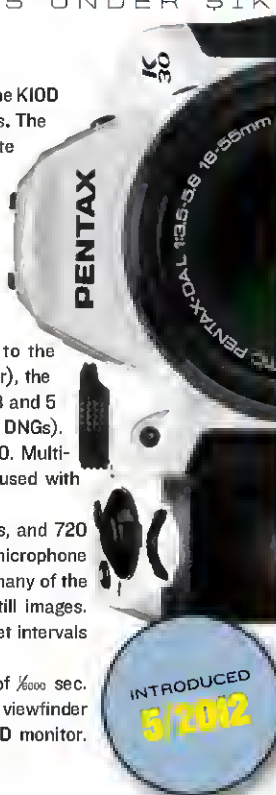
PENTAX K-30

Pentax has been producing weatherproof DSLRs since the K10D in 2006, but they have always been the flagship models. The K-30 brings this great feature (and the ability to operate in temperatures down to 14°F/-10°C) to a more affordable model. The camera can use the full range of Pentax K-mount lenses, but note that not all Pentax lenses are weatherproof—just the DA* ones, and those with the WR designation. Like all recent Pentax DSLRs, the K-30 has an effective sensor-shift Shake Reduction system that works with all lenses.

Featuring a 16.3-megapixel CMOS sensor similar to the highly regarded one in the K-5 (but not the same sensor), the K-30 delivers 12-bit RAW DNG files or JPEGs at 16, 12, 8 and 5 megapixels. It can shoot at 6 fps (up to 30 JPEGs or 8 DNGs). Normal ISO range is 100-12,800, expandable to 25,600. Multi-level in-camera HDR extends detail and even can be used with moving subjects.

The K-30 can shoot 1080 full HD at 30 and 24 fps, and 720 HD at 60, 30 or 24 fps. Sound is mono via a built-in microphone and the level can be adjusted manually. You can apply many of the camera's built-in special effects to video as well as still images. There's also Interval Movie mode, which shoots at preset intervals and saves the images as a video clip.

Other fine features include a top shutter speed of $\frac{1}{8000}$ sec. (usually $\frac{1}{4000}$ sec. in this category), digital levels for a viewfinder and an LCD monitor, a built-in flash and a 3-inch LCD monitor. Estimated Street Price: \$850 (body only).



SONY SLT-A37

The A57's "little sibling," the SLT-A37 is smaller and lighter, but features the same 16.1-megapixel image sensor and offers many of the same features, including Sony's Translucent Mirror Technology, which provides full-time continuous phase-detection AF for stills and movies. The A37 is a bit slower than the A57, but still quite fast for an entry-level model: 5.5 fps at full resolution, 7 fps in Tele-zoom Continuous Advance Priority mode (8-megapixel images, 1.4x crop factor), all with full-time continuous phase-detection AF.

Video features are similar to those of the A57, but the 1080 AVCHD video is 60i or 24p, not 60p. A built-in microphone provides stereo sound, and there's a jack for an external mic, rare at this price.

Auto Portrait Framing mode helps newcomers by optimally cropping and saving an additional frame (along with the original image). Clear Image Zoom provides 1.4X and 2X digital zoom with minimal loss of image quality. 2D and 3D Sweep Panorama makes it simple to do in-camera stitched panoramas. Anti-Motion Blur does what it sounds like. Adjustable Auto HDR expands detail in shadows and highlights.

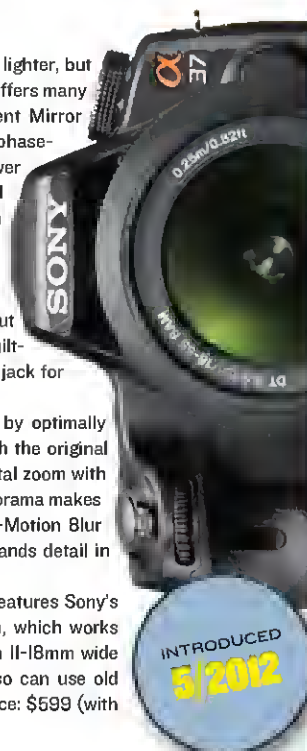
Like all Sony DSLR and SLT cameras, the A37 features Sony's SteadyShot INSIDE sensor-shift image stabilization, which works with all lenses. Sony offers A-mount lenses from an 11-18mm wide zoom to a 600mm super-telephoto. The camera also can use old Konica Minolta Maxxum lenses. Estimated Street Price: \$599 (with 18-55mm zoom).



STANDOUT FEATURE: The benefits of Sony's Translucent Mirror Technology in a very small affordable package.



1. The A37 features the same 1,440K-dot Tru-Finder eye-level electronic viewfinder as the A57. 2. The 2.7-inch LCD monitor is smaller than the A57's, and tilts, but doesn't rotate. 3. Connections include an HDMI output for viewing images and video on TV, and an input for a stereo microphone—a great feature for an entry-level model.



SONY SLT-A57

Action shooters on a budget, take notice: This relatively low-cost Translucent Mirror camera can shoot 16-megapixel images at 10 fps and 8.4-megapixel images at 12 fps—all with full-time phase-detection continuous AF. The latter are cropped from the full image via Tele-zoom Continuous Advance Priority mode, which also provides 1.4X tighter framing on the subject, handy for sports and wildlife photography.

Part of the secret is Sony's Translucent Mirror Technology, in which the SLR mirror doesn't have to flip up out of the light path to make an exposure. Instead, it transmits most of the light to the image sensor, while directing a portion up to the phase-detection AF sensor. Thus, you get full-time phase-detection AF with eye-level (or LCD monitor) viewing, even for video. The eye-level viewing is provided by a very good 1,440K-dot Tru-Finder electronic viewfinder.

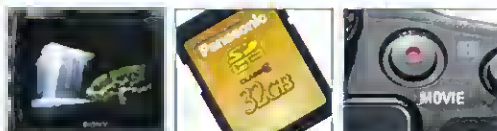
Of course, action isn't all the A57 is good at. It's a fine general-purpose camera, with excellent image quality, SteadyShot INSIDE sensor-shift image stabilization that works with all lenses, Sweep and 3D Sweep Panorama, Auto HDR, Hand-held Twilight and Multi-frame Noise Reduction modes (which use data from six quick shots to minimize camera shake and noise) and a variety of Picture Effects. There's also a new Auto Portrait Framing Mode, which saves an additional frame cropped "optimally."

Like the A37, the A57 can do video in two formats: 1080 full HD at 60p, 60i and 24p in AVCHD, and 1440x1080 and 640x480 in MP4, both at 30p. A built-in mic provides stereo sound.

The A57 can use all Sony A-mount and legacy Konica Minolta Maxxum lenses, like all Sony DSLRs. Focal lengths from the 11-18mm zoom to 600mm supertele are available in the Sony line, plus 1.4X and 2X teleconverters. Estimated Street Price: \$699 (body only).



STANDOUT FEATURE: 12 fps with full-time continuous phase-detection AF.



1. The 3-inch LCD monitor tilts and swivels for easy odd-angle shooting.
2. The card slot accepts Memory Stick PRO Duo and PRO-HG Duo media, as well as SD/SDHC/SDXC cards.
3. Press the red button, and you're shooting video, with eye-level viewing if you want it.

MORE ONLINE: Read all of our DSLR reviews, including older models, at dpmag.com/cameras.

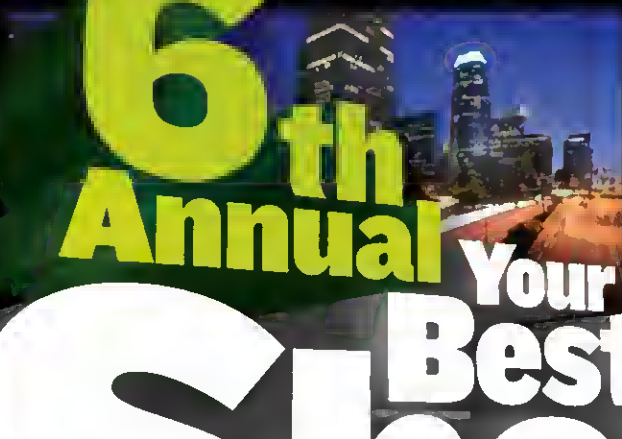


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CAMERAS

	Image Sensor	Focal-Length Factor	Max. Resolution (Pixels)	Pixel Size (Microns)	Sensor Cleaning	A/D Conv.	LCD Monitor	Live View	Top Video	AF System
OSLRs UNDER \$1,000										
Canon EOS Rebel T4i	18.0 MP CMOS	1.6x (APS-C)	5184x3456	4.3	Yes	14-bit	3.0-in., 1040K-dot	Yes	1080/30p	9-point
Nikon 03200	24.2 MP CMOS	1.5x (APS-C)	6016x4000	3.9	Yes	12-bit	3.0-in., 921K-dot	Yes	1080/30p	11-point
Pentax K-30	16.3 MP CMOS	1.5x (APS-C)	4928x3264	4.8	Yes	12-bit	3.0-in., 921K-dot	Yes	1080/30p	11-point
Sony SLT-A37	16.1 MP CMOS	1.5x (APS-C)	4912x3264	4.8	Yes	12-bit	2.7-in., 230K-dot	Yes	1080/60i	15-point
Sony SLT-A57	16.1 MP CMOS	1.5x (APS-C)	4912x3264	4.8	Yes	12-bit	3.0-in., 921K-dot	Yes	1080/60p	15-point
OSLRs OVER \$1,000										
Canon EOS 5D Mark III	22.3 MP CMOS	1.0x (full-frame)	5760x3840	6.3	Yes	14-bit	3.2-in., 1040K-dot	Yes	1080/30p	61-point
Canon EOS-1D X	18.1 MP CMOS	1.0x (full-frame)	5184x3456	6.9	Yes	14-bit	3.2-in., 1040K-dot	Yes	1080/30p	61-point
Nikon D4	16.2 MP CMOS	1.0x (full-frame)	4928x3280	7.3	Yes	14-bit	3.2-in., 921K-dot	Yes	1080/30p	51-point
Nikon D800	36.3 MP CMOS	1.0x (full-frame)	7360x4912	4.9	Yes	14-bit	3.2-in., 921K-dot	Yes	1080/30p	51-point
Sigma SD1 Merrill	15.4x3 Foveon	1.5x (APS-C)	4704x3136	5.0	No	12-bit	3.0-in., 460K-dot	No	None	11-point
Sony SLT-A99	24.3 MP CMOS	1.0x (full-frame)	6000x4000	6.0	Yes	14-bit	3.0-in., 1229K-dot	Yes	1080/60p	121-point
MIRRORLESS										
Canon EOS M	18.0 MP CMOS	1.6x (APS-C)	5184x3456	4.3	Yes	14-bit	3.0-in., 1040K-dot	Yes	1080/30p	31-point
Fujifilm X-Pro1	16.3 MP X-Trans	1.5x (APS-C)	4896x3264	4.8	Yes	N/S	3.0-in., 1230K-dot	Yes	1080/24p	49-point
Nikon 1 J2	10.1 MP CMOS	2.7x (CX)	3872x2592	3.4	Yes	12-bit	3.0-in., 921K-dot	Yes	1080/60i	135-point
Olympus OM-D E-M5	16.1 MP Live MOS	2.0x (M4/3)	4608x3456	3.8	Yes	12-bit	3.0-in., 610K-dot	Yes	1080/60i	800-area
Panasonic Lumix OMC-CF5	12.1 MP Live MOS	2.0x (M4/3)	4000x3000	4.3	Yes	N/S	3.0-in., 920K-dot	Yes	1080/60i	23-area
Panasonic Lumix OMC-C5	16.1 MP Live MOS	2.0x (M4/3)	4608x3456	3.8	Yes	N/S	3.0-in., 920K-dot	Yes	1080/60p	23-area
Panasonic Lumix OMC-CX1	16.0 MP Live MOS	2.0x (M4/3)	4592x3448	3.8	Yes	12-bit	3.0-in., 460K-dot	Yes	1080/60i	23-area
Pentax K-01	16.3 MP CMOS	1.5x (APS-C)	4928x3264	4.8	Yes	12-bit	3.0-in., 921K-dot	Yes	1080/30p	81-area
Samsung NX20	20.3 MP CMOS	1.5x (APS-C)	5472x3648	4.3	Yes	N/S	3.0-in., 614K-dot	Yes	1080/30p	15-point
Samsung NX210	20.3 MP CMOS	1.5x (APS-C)	5472x3648	4.3	Yes	N/S	3.0-in., 614K-dot	Yes	1080/30p	15-point
Samsung NX1000	20.3 MP CMOS	1.5x (APS-C)	5472x3648	4.3	Yes	N/S	3.0-in., 920K-dot	Yes	1080/30p	15-point
Sony NEX-6	16.1 MP CMOS	1.5x (APS-C)	4912x3264	4.8	Yes	12-bit	3.0-in., 921K-dot	Yes	1080/60p	25-area
Sony NEX-F3	16.1 MP CMOS	1.5x (APS-C)	4912x3264	4.8	Yes	12-bit	3.0-in., 921K-dot	Yes	1080/60i	25-point
Sony NEX-5R	16.1 MP CMOS	1.5x (APS-C)	4912x3264	4.8	Yes	12-bit	3.0-in., 921K-dot	Yes	1080/60p	25-point

CAMERA STATS /

ISO Settings (Expanded)	Shutter Speeds	Max. Frame Rate	Metering	Built-In Flash	Storage Media	Power Source	Dimensions	Weight
100-12,800 (25,600)	30-1/4000	5 fps	63-zone, CW, spot	Yes	SD/SDHC/SDXC	LP-E8 Li-Ion	5.2x3.9x3.1 in.	20.3 oz.
100-6400 (12,800)	30-1/4000	4 fps	420-pixel, CW, spot	Yes	SD/SDHC/SDXC	EN-EL14 Li-Ion	5.0x3.8x3.1 in.	16.0 oz.
100-12,800 (25,600)	30-1/6000	6 fps	77-seg., CW, spot	Yes	SD/SDHC/SDXC	D-LI109 Li-Ion	5.1x3.8x2.8 in.	20.8 oz.
100-16,000 (25,600)	30-1/4000	5.5 fps	1200-zone CW, spot	Yes	SD/HC/XC, MS DUO/PRO	NP-FW50 Li-Ion	4.9x3.6x3.3 in.	15.8 oz.
100-16,000 (25,600)	30-1/4000	8/10 fps	1200-zone CW, spot	Yes	SD/HC/XC, MS DUO/PRO	NP-FM500H Li-Ion	5.2x3.8x3.2 in.	18.9 oz.
100-25,600 (102,400)	30-1/8000	6 fps	63-zone, CW, spot	No	CF, SD/SDHC/SDXC	LP-E6 Li-Ion	6.0x4.6x3.0 in.	33.5 oz.
100-51,200 (204,800)	30-1/8000	12/14 fps	252-zone, CW, spot	No	Dual CF	LP-E4N Li-Ion	6.2x6.4x3.3 in.	47.3 oz.
100-12,800 (204,800)	30-1/8000	10/11 fps	91K-pixel, CW, spot	No	CF, XQD	EN-EL18	6.3x6.2x3.6 in.	41.6 oz.
100-6400 (25,600)	30-1/8000	4 fps	91K-pixel, CW, spot	Yes	CF, SD/SDHC/SDXC	EN-EL15 Li-Ion	5.7x4.8x3.2 in.	31.7 oz.
100-6400	30-1/8000	5 fps	77-seg., CW, spot	Yes	CF I	BP-21 Li-Ion	5.7x4.4x3.1 in.	24.7 oz.
100-16,000 (25,600)	30-1/8000	6 fps	1200-zone, CW, spot	No	SD/HC/XC, MS DUO/PRO	NP-FM500H Li-Ion	5.8x4.4x3.1 in.	25.9 oz.
100-12,800 (25,600)	60-1/4000	4.3 fps	N/S	No	SD/SDHC/SDXC	LP-E12 Li-Ion	4.3x2.6x1.3 in.	9.2 oz.
200-6400 (25,600)	30-1/4000	6 fps	256-zone, CW, spot	No	SD/SDHC/SDXC	NP-W126 Li-Ion	5.5x3.2x1.7 in.	14.1 oz.
100-3200 (6400)	30-1/16,000	5 fps	Matrix, CW, spot	Yes	SD/SDHC/SDXC	EN-EL20 Li-Ion	4.2x2.4x1.2 in.	8.4 oz.
200-25,600	60-1/4000	9 fps	324-area, CW, spot	No	SD/SDHC/SDXC	BLN-1 Li-Ion	4.8x3.5x1.7 in.	13.0 oz.
160-6400 (12,800)	60-1/4000	4 fps	144-zone, CW, spot	Yes	SD/SDHC/SDXC	Lithium-Ion	4.2x2.6x1.5 in.	7.9 oz.
160-12,800	60-1/4000	3.7 fps	144-zone, CW, spot	Yes	SD/SDHC/SDXC	Lithium-Ion	4.7x3.3x2.8 in.	12.2 oz.
160-12,800	60-1/4000	4.2 fps	144-zone, CW, spot	Yes	SD/SDHC/SDXC	Lithium-Ion	4.6x2.7x1.6 in.	9.6 oz.
100-12,800 (25,600)	30-1/4000	6 fps	1024-zone, CW, spot	Yes	SD/SDHC/SDXC	D-LI90 Li-Ion	4.8x3.1x2.3 in.	16.9 oz.
100-12,800	30-1/8000	8 fps	221-seg., CW, spot	Yes	SD/SDHC/SDXC	BP1310 Li-Ion	4.6x2.5x1.4 in.	7.7 oz.
100-12,800	30-1/4000	8 fps	221-seg., CW, spot	No	SD/SDHC/SDXC	BP1030 Li-Ion	4.6x2.5x1.4 in.	7.8 oz.
100-12,800	30-1/4000	8 fps	221-seg., CW, spot	No	SD/SDXC, MS DUO/PRO	Li-Ion	4.5x2.5x1.5 in.	7.8 oz.
100-25,600	30-1/4000	3 fps	1200-zone, CW, spot	Yes	SD/HC/XC, MS DUO/PRO	NP-FW50 Li-Ion	4.7x2.6x1.7 in.	10.1 oz.
200-16,000	30-1/4000	N/S	1200-seg., CW, spot	Yes	SD/SDXC, MS DUO/PRO	NP-FW50 Li-Ion	4.6x2.6x1.6 in.	9.0 oz.
100-25,600	30-1/4000	3 fps	1200-seg., CW, spot	Incl. acc.	SD/SDXC, MS DUO/PRO	NP-FW50 Li-Ion	4.4x2.3x1.5 in.	7.7 oz.

PREMIUM COMPACTS

BIG ZOOMS AND OTHER UNIQUE, HIGH-PERFORMANCE FEATURES IN AFFORDABLE, PORTABLE CAMERAS | BY KIM CASTLEBERRY

Advanced compacts put many DSLR features into a body that's significantly smaller and lighter than a typical DSLR, great when you want to travel light without sacrificing image quality. With serious zoom power, their fixed lenses often carry wide-angle to telephoto focal-length ranges, allowing you to capture a versatile mix of stills and video. (Note: Zoom ranges listed are 35mm equivalent.)

Many also offer sophisticated features, such as backside-illuminated CMOS sensors for better performance in low light, fast autofocus systems and 1080p HD video recording. The look and feel of these cameras is similar to an entry-level DSLR, with most offering a sizable handgrip to help you hold the camera more securely.



◀ CANON POWERSHOT SX500 IS

The Canon PowerShot SX500 IS loads a ton of useful features into a compact body, starting with its 24-720mm equivalent zoom. The camera uses Intelligent Image Stabilization, which analyzes how the camera is moving and applies the most optimal method for correcting any shake. There are six different settings the system chooses from based on your subject matter, as well as whether you're shooting stills or video. A 16-megapixel CCD sensor, DIGIC 4 processor, 3-inch LCD with 461,000-dot resolution and 720p video capture at 25 fps round out the camera's key specs. Pressing the Zoom Framing Assist button lets you zoom all the way out on a faraway subject and locate it before releasing the button to return the lens to its original zoom position. The subject stays in focus until you're ready to shoot. List Price: \$329.

FUJIFILM FINEPIX HS30EXR ▶

The 30x optical zoom on the Fujifilm FinePix HS30EXR is just one of many factors that makes this camera an appealing option. Along with the 24-720mm equivalent focal-length range, the camera has an Intelligent Digital Zoom mode that offers 60x magnification power, the equivalent of a 1440mm focal length. You can control the zoom manually, just like you would with a DSLR, and the viewfinder is large enough that you can focus with precision. Among the more advanced shooting modes is a focus-bracketing mode that achieves the look of using a shallow depth of field. When shooting at full resolution, the 16-megapixel camera has an 8 fps burst rate. At lower 8-megapixel resolution, it increases to 11 fps. The 3-inch LCD has a Sunlight Mode for delivering clear images under bright conditions. List Price: \$499.



◀ NIKON COOLPIX P510

Upping the zoom factor to 42x, the Nikon Coolpix P510 pushes into new focal-length territory with its 24-1000mm zoom, the longest telephoto length in this camera class. The zoom on the camera's predecessor, the P500, offered 36x capability. You can use that expansive zoom range to capture 16.1-megapixel stills or 1080p video at 30 fps. Adding to its lens power, in macro mode, you can focus as close as 0.4 inches for getting detailed close-ups. You can frame images using either the 3-inch tilting vari-angle LCD with 921,000-dot resolution or the electronic viewfinder. The camera really does look and feel like a miniature version of a DSLR with the handgrip and eye-level viewfinder. Other key features include 5 fps continuous shooting and a built-in GPS for tagging photos. List Price: \$429.

OLYMPUS STYLUS SP-820UZ iHS ▶

One of the standout features of the Olympus STYLUS SP-820UZ iHS, in addition to the huge zoom, is its iHS technology. Drawing on a high-sensitivity, 14-megapixel CMOS sensor and TruePic V image processor, originally developed for DSLRs, the SP-820UZ incorporates several high-end shooting features, such as fast reaction times, solid low-light performance and zoom magnification that doesn't sacrifice image quality. The impressive 40x zoom delivers a 22.4-896mm equivalent focal length range, and a Super-Resolution Zoom mode doubles the focus distance to 80x zoom magnification. The camera records 1080p HD video, and incorporates Dual Image Stabilization and Multi-Motion Movie Image Stabilization technology to produce sharp images. There are other shooting modes and filters for enhancing your creativity. Estimated Street Price: \$329.



PANASONIC LUMIX DMC-FZ200 ▶

With a relatively fast $f/2.8$ maximum aperture throughout its entire 25-600mm equivalent focal-length range, the Panasonic Lumix DMC-FZ200 lets you take advantage of its powerful zoom in low light without having to ramp up the ISO. The 12-megapixel High Sensitivity MOS sensor, LSI Venus Engine processor and Light Speed AF system are all new. The camera can shoot at up to 12 fps in full resolution, capture high-speed video at 120 fps and 240 fps, and record 1920x1080 60p video in AVCHD and MP4 formats. A hot-shoe lets you add an external flash or mic that gets plugged into the camera's audio input jack. Shooting options go from fully automatic to manual for photos and video, and the high-speed processor and sensor allow for new HDR and panoramic photo modes. List Price: \$599.

**◀ PENTAX X-5**

Getting an expansive landscape shot won't be a problem with the Pentax X-5, which offers a very wide angle of view with its 22.3-580mm equivalent zoom. With a backlit 16-megapixel CMOS sensor, the camera captures 1080p video at 30 fps using H.264 compression. The X-5's electronic viewfinder, which has 260,000-dot resolution, delivers DSLR-like handling and a clear view of your subject, while the 3-inch tilting LCD lets you compose and play back images. For image stabilization, Pentax uses its Triple Shake Reduction technology, which includes a mechanical sensor-shift mechanism, digital high-ISO shake reduction and movie shake reduction. List Price: \$279.

**SAMSUNG WB850F ▶**

One of the best times to have a compact camera with a big zoom range is when you're traveling—and this camera is made for traveling, with some unique features for the photo adventurer. With the Samsung WB850F, you can upload photos of your trip instantly using the camera's Wi-Fi capability. The 21x Schneider-Kreuznach Varioplan zoom delivers an equivalent focal-length range of 23-483mm, and the camera has built-in GPS technology with a Live Landmark function for accessing information about points of interest in front of you. The WB850F also includes other cool navigational tools such as MapView, which you can use after downloading a map to the camera's SD card, and there's a digital compass for helping you face the right direction. Additional features include a 3-inch, 614,000-dot AMOLED screen, 1080p HD video recording and full manual shooting modes. List Price: \$349.

**◀ SIGMA DPI AND DP2 MERRILL**

Though they don't boast a large zoom range, the Sigma DPI and DP2 Merrill offer some unique qualities—primarily, the same high-resolution, 46-megapixel Foveon X3 image sensor found in Sigma's pro DSLR, the SD1 Merrill. The sensor sandwiches three separate layers of red, green and blue photodiodes on a 23.5x15.7mm sensor. With 4800x3200 pixels, there are three 15.3-megapixel layers and that translates to about 46 megapixels of effective information. Both cameras feature dual TRUE II image processors for faster processing speed, 3-inch LCD screens with 920,000-dot resolution, and RAW and JPEG recording modes. The DPI Merrill has a 19mm $f/2.8$ lens, which is equivalent to 28mm in 35mm format, and the DP2 Merrill offers a 30mm $f/2.8$ lens, which is equivalent to 45mm in 35mm format. The cameras are compact and lightweight, and feature Super Multi Layer Coating to reduce flare and ghosting. The DPI Merrill also includes "F" Low Dispersion glass to correct aberrations. Estimated Street Price: \$999 (each).

SONY CYBER-SHOT DSC-HX200V ▶

No shot is too far away with the 18.2-megapixel Sony Cyber-shot DSC-HX200V, which packs a long 30x zoom (27-810mm equivalent), 10 fps continuous shooting, an eye-level electronic viewfinder and a tilting 3-inch LCD into its DSLR-like frame. Along with full manual controls for shutter and aperture, the HX200V offers aperture-priority and shutter-priority modes, as well as manual-focus controls that are adjusted using the ring around the lens barrel. For image stabilization, the camera has a three-way Active mode that adds digital rolling control for countering clockwise and anti-clockwise rotation. The result is more stable video, even when using longer focal lengths. The camera records 1080p video at 60 fps and can simultaneously capture 13-megapixel stills. Other features include fast autofocus speeds, a range of in-camera effects and shooting modes, and built-in geotagging. List Price: \$479.

DP



LENSES

THE LATEST OPTICS
FOR DSLR AND
MIRRORLESS MODELS
BY WILLIAM SAWALICH

If you're looking to buy a new lens with the latest optical technology, you're in luck. Manufacturers have spent 2012 introducing many new models from which to choose. Whether you're shopping for an extreme zoom for your

mirrorless camera or a superfast wide-angle prime for your DSLR, there's literally something for everyone. Here's a breakdown of the new glass each manufacturer has introduced since last year's Buyer's Guide.



Canon EF 24-70mm
f/2.8L II USM

Canon EF-S 18-135mm
f/3.5-5.6 IS



Canon EF 24mm
f/2.8 IS USM



CANON

Canon has been busy since last fall, introducing three new prime lenses, a superzoom and an update to one of its most popular pro-series "L" lenses for DSLRs. And don't forget the EF-M-mount lenses introduced for the new EOS M mirrorless compact camera. The three primes—the EF 24mm, EF 28mm and EF 40mm—are all moderately fast f/2.8 maximum apertures, the wider pair actually offering image stabilization and ultrasonic motors for fast autofocus.

The EF 40mm is an ultracompact pancake lens that works on full-frame and APS-C sensors, and features a stepping motor for quiet and accurate autofocus while shooting video. That's the same focusing motor as the EF-S 18-135mm zoom, which is designed for APS-C cameras—on which it performs more like a 28-200mm lens—and includes optical image stabilization to make sharper images while handholding.

The updated EF 24-70mm f/2.8 L II USM zoom is a smaller and more rugged version of the company's popular standard zoom, incorporating several optical enhancements to produce sharper images across the focal range, but especially at the telephoto end.

The lenses currently available for the new EOS M are the fast 22mm f/2 STM lens, which is built for smooth and quiet autofocus while shooting video, and the 18-55mm image-stabilized zoom (also optimized for video), which performs equivalent to a 29-88mm lens—a very versatile wide-to-tele-zoom range.

Estimated Street Price: 24-70mm (\$2,299); 24mm (\$849); 28mm (\$799); 40mm (\$199); 18-135mm (\$549); 22mm/kit with EOS M body (\$799); 18-55mm (\$299).



Fujifilm Fujinon
XF60mm F2.4
R Macro

Fujifilm Fujinon
XF18mm F2 R

Fujifilm Fujinon
XF35mm F2.4 R

FUJIFILM

Fujifilm started shipping three new XR prime lenses earlier this year to accompany its new X-Pro1 digital rangefinder, and it's beefing up the line with two new lenses—including a zoom—this fall.

The Fujinon XF18mm F2 R, XF35mm F2.4 R and XF60mm F2.4 R Macro are fairly fast primes built for the APS-C X-Trans CMOS sensor size, and along with fast maximum apertures, they include some interesting features to make sharper, better-looking pictures. In pursuit of better bokeh, Fujifilm has rounded the aperture blades so they remain circular at all sizes. Even more, though, the manufacturer cuts the blade edges in a shaped fashion for improved sharpness across the f-stop range.

This same technology is included in the new XF14mm F2.8 R wide-angle prime and the first zoom for the X mount, the XF18-55mm F2.8-4 R.

Estimated Street Price: 18mm (\$599); 35mm (\$599); 60mm (\$699); 14mm and 18-55mm (TBD).



Nikon AF-S OX Nikkor
18-300mm $f/3.5-5.6G$
ED VR



Nikon AF-S Nikkor 24-85mm
 $f/3.5-4.5G$ ED VR



Nikon I Nikkor VR 10-100mm
 $f/4.5-5.6$ PD-Zoom

NIKON

When you factor in the offerings for the I system—introduced shortly after last year's Buyer's Guide went to press—Nikon has been busier than ever making lenses this year. Starting with five Nikkor lenses for the J1 and V1 cameras—the 10mm $f/2.8$ prime, VR 10-100mm $f/4.5-5.6$ PD-Zoom, VR 10-30mm $f/3.5-5.6$ zoom (available as the kit lens with both J1 and V1 bodies), VR 30-110mm $f/3.8-5.6$ and the newest addition, the II-27.5mm $f/3.5-5.6$ —they're all part of what makes the compact system so versatile and able to cover a wide spectrum of focal lengths.

For DSLR users, though, four different lenses are sure to

pique your interest. The AF-S OX Nikkor 18-300mm $f/3.5-5.6G$ ED VR is a vibration-reducing compact superzoom built for the OX sensor size. Users of OX cameras as well as cameras with full-frame sensors will appreciate the two superfast $f/1.8$ primes—the 28mm and 85mm—as well as the 24-85mm $f/3.5-4.5G$ ED VR compact standard zoom. Something for everyone, and every budget, indeed.

Estimated Street Price: 10mm (\$249); 10-100mm (\$749); 10-30mm/kit with J1 body (\$649); 30-110mm (\$249); II-27.5mm (\$189); 18-300mm (\$999); 24-85mm (\$599); 28mm (\$699); 85mm (\$499).



Olympus M.Zuiko Digital
EO 60mm $f/2.8$

Olympus M.Zuiko
Digital EO 12-50mm
 $f/3.5-6.3$ EZ



Olympus M.Zuiko Digital
EO 75mm $f/1.8$

OLYMPUS

There are three new-for-2012 lenses from Olympus. The M.Zuiko Digital ED lenses are the 12-50mm $f/3.5-6.3$ EZ variable-maximum-aperture zoom, the 75mm $f/1.8$ prime and the 60mm $f/2.8$ macro lens. While they work on all the Olympus Micro Four Thirds cameras, the new lenses were especially designed to pair with the new OM-D retro-styled SLRs. That means they're also ideal for shooting video—especially the 12-50mm zoom (it performs equivalent to a 24-100mm lens), which has a motorized zoom option built in for smooth zooming just like professional video cameras.

For still photography, though, the 75mm prime is an ideal portrait lens (equivalent to a 105mm telephoto), and the 60mm macro performs that role well, too (90mm equivalency), with its ability to render life-sized reproductions of tiny subjects as close as 7 inches from the front of the lens.

Estimated Street Price: 12-50mm (\$499); 75mm (\$899); 60mm (T80).

PANASONIC

This fall, Panasonic is shipping two new zooms for the Micro Four Thirds system. Together they cover a wide range of focal lengths from 12mm at the wide end to 150mm on the telephoto.

The wide zoom, the Lumix G X Vario 12-35mm $f/2.8$ ASPH Power OIS, is the latest addition to the company's premium "X" lineup of lenses, and it offers a fast maximum aperture and an equivalent focal length of 24-70mm.

At the longer end, the Lumix G Vario 45-150mm $f/4-5.6$ ASPH Mega OIS is a compact and affordable way to get the equivalent range of a 90-300mm telephoto zoom.

Both new lenses have optical image stabilization for hand-holding assistance at slower shutter speeds, nano surface coatings for minimized lens flare and aspherical glass designed to eliminate aberrations.

List Price: 12-35mm (\$1,299); 45-150mm (T80).



Panasonic Lumix G Vario 45-150mm $f/4-5.6$ ASPH Mega OIS



Panasonic Lumix G X Vario 12-35mm $f/2.8$ ASPH Power OIS

PENTAX

Pentax has introduced two new prime lenses. Following in the long tradition of fast 50mm OSLR primes come the new Pentax smc OA 50mm $f/1.8$ and 40mm $f/2.8$ XS lenses.

Unlike most 40mm and 50mm primes, however, these two lenses behave less like normal lenses and more like portrait lenses, as the Pentax K-mount lenses on which they're used have APS-C-sized sensors.

The 50mm looks like a 75mm short telephoto, and the 40mm pancake lens—supersmall—like a 60mm long normal lens. Both of them are inexpensive and ultracompact, and sure to be welcome additions to any camera bag.

List Price: 40mm (\$249); 50mm (\$249).



Pentax smc OA 50mm $f/1.8$



Pentax smc OA 40mm $f/2.8$ XS



Sigma APO Macro 180mm F2.8 EX DG OS HSM

Sigma 18-250mm F3.5-6.3 DC Macro OS HSM

SIGMA

It's hard to imagine a lensmaker having a busier year than Sigma. With six new models on the market—including three primes and three zooms, and lenses for Micro Four Thirds, Canon, Nikon, Sony and more mounts—there's likely something for every need in this recent crop of glass.



Sigma 19mm F2.8 EX DN

The 19mm EX ON and 30mm EX ON lenses are for the Sony NEX as well as Panasonic and Olympus Micro Four Thirds cameras, on which they become moderate wide-angles and normal lenses, respectively.

The 180mm F2.8 Macro lens incorporates image stabilization and a fairly fast maximum aperture while creating life-sized reproductions as close as 18 inches.

The zooms are all for OSLRs, and they cover everything from ultrawide to seriously telephoto. There's the 18-250mm F3.5-6.3 DC Macro with optical image stabilization and a compact size for such a powerful lens, the 50-150mm F2.8 APO EX DC II HSM, which has optical image stabilization and—given the range of the lens—a superfast $f/2.8$ maximum aperture, and the updated 18-200mm F3.5-6.3 II DC OS HSM, which adds improved optics by way of FLD glass to one of the original extreme zooms.

Estimated Street Price: 19mm (\$199); 30mm (\$199); 180mm (\$1,699); 18-250mm (\$549); 18-200mm (\$499); 50-150mm (\$1,099).

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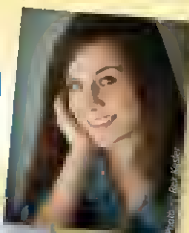
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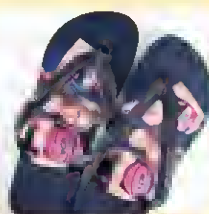


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SONY

Sony's newest lens is the 55-300mm extreme zoom for the Alpha DSLR system. With a variable $f/4.5-5.6$ maximum aperture, it remains compact for a lens with such focal range, and extra-low-dispersion glass—commonly found on premium G-series Sony lenses—improves edge-to-edge sharpness and reduces color aberrations.

Prior to this recent addition, Sony added another Alpha lens, plus three models for the NEX compact camera system. The OT 16-50mm SSM zoom is an A-mount for the Alpha line with a fairly fast $f/2.8$ maximum aperture across the zoom range, which is ideal for an everyday wide-to-normal zoom. Aspherical elements and EO glass help to minimize aberrations for sharper, clearer, higher-fidelity photographs with this lens, which performs equivalent to a 24-75mm zoom.

The three E-mount lenses are the fast 50mm $f/1.8$ OSS prime lens, the 55-210mm $f/4.5-6.3$ OSS superzoom and the Carl Zeiss Sonnar T* 24mm $f/2.8$ ZA wide-angle. The 50mm is equivalent to a telephoto 75mm lens when used on APS-C-sized cameras, and its optical image stabilization (when combined with the wide maximum aperture) make it ideal for low-light handholding.

The 24mm prime is the first "premium" lens in the NEX lineup—as the Zeiss name suggests—and it performs like the classic and popular 35mm lens from the era of 35mm film SLRs.

The 55-210mm zoom also has optical image stabilization, and it performs equivalent to an 83-215mm telephoto lens.

Estimated Street Price: 55-300mm (\$299); 16-50mm (\$799); 24mm (\$1,099); 50mm (\$299); 55-210mm (\$349).



Sony Alpha OT 55-300mm
 $f/4.5-5.6$ SAM



Sony Alpha OT 16-50mm
 $f/2.8$ SSM



Tokina AT-X 16-28 F/2.8 Pro FX

TOKINA

There are no new 2012 additions to the Tokina lens lineup, which consists of eight lenses—seven zooms and a macro prime.

The most recent lens from the manufacturer is the 16-28mm AT-X Pro wide-angle zoom. It sports a fast $f/2.8$ aperture that remains constant across the focal range, and the GMR magnetic autofocus sensor combined with a silent DC motor make autofocus faster than with previous models. Super-low-dispersion glass and aspheric elements reduce chromatic aberration, improve clarity and minimize distortion from edge to edge across the frame.

Estimated Street Price: \$849.

TAMRON

There are two new zoom lenses available from Tamron, a 24-70mm standard zoom for Canon, Nikon and Sony OSRs, and an 18-200mm extreme zoom built for the Sony NEX compact camera system.

The SP 24-70mm has a fairly large $f/2.8$ maximum aperture, plus optical image stabilization to make it especially practical in low-light situations. The rounded aperture blades produce attractive bokeh, as well.

The 18-200mm F/3.5-6.3 Di III VC is a compact, yet powerful lens to pair with a compact, yet powerful NEX camera. Equivalent to a 27-300mm zoom, this lens covers a whopping focal range and has built-in optical image stabilization, yet the variable maximum aperture helps keep the size and weight down to a comfortable minimum.

Estimated Street Price: 24-70mm (\$1,299); 18-200mm (\$749).



Tamron 18-200mm
F/3.5-6.3 Di III VC



Tamron SP 24-70mm
F/2.8 Di VC USD

THE SILVER ANGEL

BY JAROSLAV WIECZORKIEWICZ
AURUM LIGHT
STUDIO

www.AURUMLIGHT.COM



We had a lot of fun during this shoot!

I was waiting with this concept for a while. I knew that I wanted massive wings and that we would be throwing liquid very fast, very high, and very far.

Originally, we used several different brands of studio lights – Bowens, Elinchrom, and AlienBees – and funny enough, we experienced the exact same problem every time. The flashes produced a “long tail” of light that couldn’t freeze the fast moving liquid. We needed to find something really fast, and there are not many options on the market – especially at the price point we were looking for.

We did a few tests and switched to a completely new system – Paul C. Buff’s Einstein flash units. After a number of shoots, I am really impressed. This is the first light that I have ever worked with that gives me the feeling that I am in total control...and I’m a “manual” type of guy.

I’d been working with the Elinchrom Rangers for a while and loved the build quality, but I didn’t like the cryptic 7-step power scale at all. Now I’ve had all of my Elinchrom modifiers equipped with custom speedrings so that they can be used on my Einstein units instead.

The Einstein units have a unique control panel and they can be powered from 2.5Ws all the way up to 640Ws with a mind-blowing flash duration of 1/13,500 of a second (t.1)! Sweet! If you are interested in more details you will need to go to the Paul C. Buff website (www.paulcbuff.com), but when I am telling you that this baby is sharp, believe me – it is!

model: Alena Dubravova

hair/make-up: Sue-Ellen Chohan Thompson

assistants: C. Close, S. Mueller, A. Ziemkiewicz

© Jaroslav Wieczorkiewicz 2011

equipment list

- Paul C. Buff Einstein E640 flash units (640WS)
- Paul C. Buff CyberSync wireless remotes
- Paul C. Buff Vagabond Mini Lithium packs
(optional battery packs - one for each flash)
- Paul C. Buff giant foldable softboxes
- London Water Supply H₂O



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FLASH & ACCESSORIES

EXTENSIVE LIGHTING
POSSIBILITIES WITH A
SINGLE FLASH
BY DAVID WILLIS

Modern flashes are extremely versatile, thanks to their compact size and relatively low power consumption in comparison to studio lights, alongside amazing features like wireless control over flash functions, a variety of lighting modes for a variety of lighting effects and automatic TTL (through-the-lens) synchronization of exposure even at long distances. There are more choices to consider than your camera maker's dedicated system flash, as well.

FLASHES



METZ

The fully featured Mecablitz 58 AF-2 flash from Metz offers TTL abilities with most of the major camera brands. The head features a 300° swiveling design with evaluative preflash for establishing best exposure, as well as a W/A Diffuser for an even spread of diffusion when using wide-angle lenses. If the camera offers a built-in flash, the 58 AF-2 also can be controlled wirelessly from the camera and an auto-zoom feature can be set to match the sensor size. List Price: \$445.



NISSIN

For Canon, Nikon and Sony models, the Di866 Mark II flash from Nissin includes an easy-to-navigate, two-way color display. The Mark II can be used with wireless TTL setups and flash groupings as both commander and slave unit, and it includes an adjustable TTL default level for an additional source of exposure compensation. Estimated Street Price: \$349.



PHOTOFLEX

With a guide number of 80, the Starfire Digital Flash from Photoflex is an affordable, no-frills manual flash that can be used as an optical slave. It also can be used in a mode that will ignore preflash for use as a slave when working with TTL flashes. What makes it really exciting is that it's available in studio kits with a variety of light-modification tools for transforming the flash into a small studio lighting setup. Estimated Street Price: \$129 (flash only).



QUANTUM

Quantum Instruments TRIO series of TTL hot-shoe flashes include built-in FreeWire radio triggers for up to 600 feet of reliable control over remote Qflash units, and even Nikon or Canon flashes with the optional Qlink. The parabolic reflector produces a high-output burst with an even light spread. Bare-bulb lighting is possible by removing the reflector. The TRIO requires an additional Turbo battery purchase. Estimated Street Price: \$875.



SIGMA

The Sigma EF-610 DG Super Flash produces a powerful light output that's compatible with wireless TTL systems from Canon, Nikon, Olympus, Panasonic, Pentax and Sigma. An auto-zoom function covers a range of 24mm to 105mm with a built-in Wide Panel for working with wide-angle lenses. The head swivels 180° to the left and 90° to the right, with a tilt of +90° to -7° for close-up work. Sigma also offers cost-saving "ST" versions of the Super models. Estimated Street Price: \$255 (Sigma EF-610 DG Super Flash); \$165 (Sigma EF-610 DG ST Flash).



SUNPAK

Sunpak's PZ42X flash provides TTL operation from the hot-shoe of Canon, Nikon and Sony Alpha cameras. The flash swivels 180° to the left and 120° to the right, with an upward tilt of 90°. The focal length can be switched from APS-C to full frame, and there's an Auto Focus Assist light for low-light operation. Seven steps of Power Ratio (from 1/4 to full power) are included for manually adjusting flash output, and exposure value adjustment allows up to +/- 1.5 EV stops. Estimated Street Price: \$149.

MODIFICATION TOOLS

Working with light-modification tools will give you control over the quality of the flash output.



EXPOIMAGING

Expolmaging offers three new Rogue Lighting Kits for small strobes. The Rogue Starter Lighting Kit has everything you need for an introduction to light-modification tools with a Rogue Small FlashBender Reflector, Rogue Small Diffusion Panel, Rogue Bounce Card/Flag and Rogue Universal Flash Gel Kit. The Rogue Portrait Lighting Kit adds larger versions of the FlashBender Reflector and Diffusion Panel, as well as the Rogue 3-in-1 Honeycomb Grid. The Rogue Master Lighting Kit includes enough tools to work with more than one light. List Price: \$199 (Rogue Master Lighting Kit); \$149 (Rogue Portrait Lighting Kit); \$99 (Rogue Starter Lighting Kit).



GARY FONG

Gary Fong has just released two new light mods: the Lightsphere Collapsible Snoot and the Colored Dome Kit, which includes a Red, Blue and Green Dome for adding colorful effects to light output and a Gray Dome for dialing in proper white balance. The Lightsphere Collapsible Snoot is designed as a more portable version of the powerful PowerSnoot for spotlight-like control over light spill. Add the PowerGrid for \$10 more for an even stronger throw. List Price: \$24 (Colored Dome Kit); \$49 (Lightsphere Collapsible Snoot); \$59 (with PowerGrid).



HARBOR DIGITAL DESIGN

The Ultimate Light Box Pro Pack is available in models that have been sized for a variety of popular flash models. The comprehensive package includes a flash head adapter and several diffusion domes, including the large softbox-like Ultimate Light Box, as well as color filters and reflectors. Harbor Digital Design also offers flash-sized honeycomb grids and a flash extender for magnifying output. Estimated Street Price: \$105 (Ultimate Light Box Pro Pack).



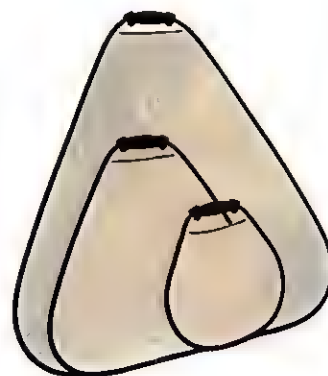
HONL

HONL's traveller16 miniaturizes the classic design of a softbox for use with your speedlight. A large 16-inch front panel disperses and softens the light, and there's a removable baffle for stronger output. A smaller traveller8 is available, and both models will fold flat for stowing. List Price: \$69 (traveller8 Softbox); \$109 (traveller16 Softbox).



INTERFIT

Interfit's Strobies line offers compact versions of studio lighting tools for use with on-camera flashes. The Interfit Strobies Portrait Kit combines a beauty dish (a flattering forward-facing reflector), globe diffuser, softbox, barndoors, snoot and honeycomb grid. The system requires separate Flex Mounts, available in sizes for most popular flash models. Estimated Street Price: \$129 (Interfit Strobies Portrait Kit); \$8 each (Flex Mount).



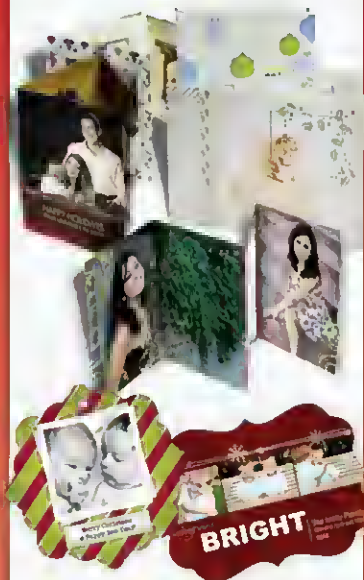
LASTOLITE

Lastolite's healthy selection of light-modification tools includes several collapsible reflector and diffuser models all the way up to 6x4-feet in size. Their popular handheld TriGrip series is available in three sizes: 18, 33 and 48 inches. With a unique built-in grip, tough tensile strength and numerous reflective and diffusion materials, TriGrips are an ideal solution for bouncing and diffusing light outdoors, even in windy conditions. List Price: From \$63.

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LUMIQUEST

LumiQuest announced three new flash-modification kits this year. The Wedding/Event Kit includes a Quik Bounce flash reflector and the FXtra gel holder with eight gels. The Strobist Kit offers a similar setup, with a Promax Softbox III and FXtra setup. The Location/Portrait Kit includes the SoftBox III, a Snoot XTR for accent light and the FXtra holder with gel set. Estimated Street Price: \$55 (Wedding/Event Kit); \$55 (Strobist Kit); \$79 (Location/Portrait Kit).



STO-FEN

Sto-fen's Omni-Bounce is a simple unit that secures over the front of a flash to soften and spread the harsh directional burst of light. It's available in green and gold for correcting the white balance of fluorescent lights or adding warmth to skin tones. List Price: \$19.



F.J. WESTCOTT

Several Micro and Mini Apollo solutions are available from F.J. Westcott for adding soft-box diffusion to on-camera and off-camera flashes. The smaller 8-inch Micro Apollo affixes to almost any flash unit for an average diffusion of one and a half stops. The compact 16-inch Mini Apollo is available in a Mini Speedlite Kit that mounts quickly to a standard light stand without the need for an adapter ring. List Price: \$35 (Micro Apollo); \$77 (16-inch Mini Apollo); \$107 (16-inch Mini Apollo Speedlite Kit).

RADIO TRIGGERS

Getting the flash off the camera gives you more control over your lighting for making photographs at the next level. Modern flashes offer technological wonders like infrared TTL communication for off-camera, wireless triggering. Infrared communication is still limited by distance, physical obstacles and bright ambient light conditions, however, which can make them less versatile and less reliable than a flash triggered by a radio unit. Radio triggers even can work through walls up to a point. When comparing systems, you should be aware of TTL abilities, transmission range, maximum sync speed and the number of controllable channels and zones.



ELINCHROM

Elinchrom's Skyport Speed Transmitter and ELS Universal Speed Receiver controls flash power, shutter speed and modeling lamp on multiple strobe units at up to 393 feet, including Elinchrom units and other brands. The transmitter offers five selectable trigger modes and eight frequencies to select from.



MICROSYNC

MicroSync's compact, no-frills transmitter and receiver system includes four selectable channels for working around any signal interference. Receivers also can be used with off-camera flashes through the optional sub-mini to PC sync cord.



PHOTTIX

Phottix has just released Nikon- and Sony-compatible versions of its popular Odin TTL flash trigger and receiver set, which includes an operating range of more than 328 feet and wireless control over four operating channels, TTL functions, power and zoom settings.



POCKETWIZARD

The PocketWizard Plus III extends the control capabilities of the previous Plus II from four channels to 32. This includes 16 selective Quad-Zone Triggering channels for wireless control over four separate zones of flash settings that can incorporate multiple flashes in each zone.



RADIOPOPPER

Compatible with Canon and Nikon, RadioPopper offers two radio trigger systems with a range of more than 1,500 feet. A single PX Transmitter will let you control unlimited amounts of flashes with each PX Receiver, which is compatible with the TTL capabilities of both Canon and Nikon flashes. DP



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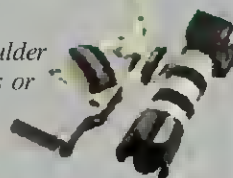
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STUDIO STROBES

MONOLIGHTS FOR PREMIUM STUDIO LIGHT | BY DAVID WILLIS

When people refer to a monolight or a strobe, they're talking about a light that produces a short, but very pow-

erful burst of light for illuminating a scene or a subject and, when used to their maximum abilities, for freezing

the actions of a subject or achieving high levels of sharpness in a scene. A monolight will incorporate most of the



DYNALITE UNI400JRg MONOLIGHT

400 Ws | 3.6 pounds | 1/675 second (full power) | 1.5- to 4.0-seconds recycling (AC power vs. Jackrabbitpack II)

With a flash consistency of a 1/10 f-stop between bursts, the Uni400JRg with a seven-inch reflector provides up to 150 full-power bursts when used with the optional Jackrabbitpack II nickel metal-hydride battery. The light provides a four f-stop power range with full, 1/2, 1/4 and 1/8 power settings. The range is adjustable in 1/3-stop steps, and a maximum sync speed of 1/2200-second is available when using 1/8 power. The incredibly portable Jackrabbitpack II has very compact dimensions of only 5.0x2.0x3.5 inches and weighs only 2.3 pounds. It includes a multivoltage charger (120-240V) that will restore the unit to full charge in three hours. It also offers dual flash outlets for powering Canon, Metz, Minolta, Nikon, Sunpak and Vivitar flashes with the separate purchase of a dedicated adapter cord, which costs around \$40 street. The head and battery are also available in several kit options. Estimated Street Price: \$680 (Uni400JRg Monolight); \$459 (Dynalite Jackrabbitpack II).



ELINCHROM ZOOM ACTION HEAD

3000 Ws | 5 pounds | Sync speed and recycle time varies by power pack

The twin-pole Action flash tube of the Elinchrom Zoom Action offers an estimated 40% to 45% shorter duration than standard horseshoe-type bulbs. The Intelligent Flash Cooling system optimizes the burst rate by electronically controlling the temperature and fan, and the Zoom Action is capable of firing off 20 serial bursts before a cool-down session is needed. The built-in reflector produces a 90° light distribution, ideal for softbox use. There's also a zoom function for achieving harder or softer light with a control dial located on both sides of the head. Also available from Elinchrom are the almost identical Zoom Pro, which offers a more standard, regular-use quartz lamp, and the Zoom Pro HD, for up to 50 rapid-fire shots thanks to a special "HD" heavy-duty, high-quality quartz lamp. All three lamp heads are compatible with all Elinchrom reflectors made since 1974 and all 110V or 230V EL Elinchrom power packs produced since 1981. Estimated Street Price: \$799 (Zoom Pro Head); \$899 (Zoom Action Head); \$1,225 (Zoom Pro HD Head).



PAUL C. BUFF EINSTEIN E640
640 Ws | 4.3 pounds | 1/2000 second | 0.1- to 1.7-seconds recycling

The feature-packed Einstein E640 offers a nine-stop range of output that's adjustable by 1/10 f-stops. The unit can fire off prior to full charge, as well, for fast flash bursts at lower power. Two modes are available: the Constant Color mode, which keeps color temperature consistent, and the Action mode, where minimized flash durations will sync with fast shutter speeds to freeze subject movements. A rear LCD screen displays menus and settings, and an Easy Set button establishes basic parameters for shooting right away. An optical trigger and standard 1/8-inch PC sync cord make it useful as a slave unit, and there's also a 250-watt modeling lamp. With globally universal power capabilities from 95VAC to 265VAC, the E640 automatically will determine correct power. Paul C. Buff also manufactures the portable Vagabond Mini Lithium power system, which weighs only 3.5 pounds, yet can power up to four Paul C. Buff flashes. An international version is also available (120-230V). List Price: \$499 (Einstein E640); \$239 (Vagabond Mini Lithium).

controls within the housing and, in general, it also needs to power from an AC/DC source. A strobe, meanwhile, usually feeds power from another device, such as your camera (flashes are strobes) or a power pack. Monolights tend to imply studio solutions, and strobes are often much more portable, but modern designs are often a hybrid of the two, and many photographers use the terms interchangeably.

The overall power of a strobe is offered as watts per second (Ws, also known as a joule), with 1000 Ws and above largely aimed at more professional use, while 300 Ws or above

provides enough light output for most basic photography needs. This is a general measure, however, and light output can change even between each burst of light, so keep this number in mind only as a general estimate.

A studio monolight will provide a lot more output than camera flashes, as well as faster bursts of light for higher sync speeds. When used with a power pack, monolights can be taken out on the road, and top-of-the-line power packs even will allow you to control attached lights directly from the power pack without making changes to lights individually, which can save a lot of time and won't slow down

the creative flow while shooting.

Though most models include a continuous modeling light, the downside to working with monolights and strobes is that the effects won't be seen until the image has been taken. With exposure histograms and instant LCD previews, this isn't the problem it was in the days of film, and most practiced photographers will develop a sense of what changes will look like without needing to see the image anyway. For photographers who aren't interested in working with video, strobes are also much more affordable (and more powerful) than the relatively new technology of LEDs.

PHOTOFLEX TRITONFLASH

300 Ws | 1.98 pounds | 1/3200 seconds
(full power) | 0.1- to 3.0-seconds recycling



With a fast-action minimum power flash duration of only 1/8600 seconds, the TritonFlash Head with a seven-inch reflector offers 19 power settings that are adjustable in 1/3-stop steps. The compact "soda-can"-sized unit measures in with a diameter of only 3.5 inches and a length of 5.51 inches. Stepping up to the TritonFlash Kit adds an optional (but required) dedicated power pack that provides up to 750 full-power bursts on one charge and up to 30,000 flashes on minimum power. A single battery will power two TritonFlash heads with the same power levels, as well as a speedlight with an optional dedicated flash cord. There's a 35-watt modeling light, a built-in optical slave sensor and included shoe-mount sync cord. The modeling light has a 10-second auto-shutoff for extending battery life, and the unit can be operated worldwide (100-240VAC). The system is also available in the TritonFlash OctoDome Strobe Kit with an extra small XS 1.5-foot softbox. List Price: \$879 (TritonFlash Head); \$529 (TritonFlash Power Pack); \$1,349 (TritonFlash Kit); \$1,499 (TritonFlash OctoDome XS Strobe Kit).

F.J. WESTCOTT STROBELITE PLUS

400 effective Ws | 4 pounds | 1/3000 seconds
| 1.0- to 2.5-seconds recycling

Westcott's Strobelite Plus fixture offers 400-effective watts per second and a modeling light with two intensities for previewing the flash and making changes. An adjustable output lets you dial in a range of illumination from 1/4 power to full intensity. The unit contains an infrared optical cell trigger for use as a slave, and a ready-light and sound "on-off" switch will indicate when the Strobelite Plus is fully charged for the next burst. A 1/8-inch sync port makes it compatible with radio triggers. The Strobelite Plus is also available as a Strobelite Plus 2-Light Kit and a Plus 3-Light Kit with a corresponding number of bundled lamp heads. List Price: \$276 (Strobelite Plus); \$840 (Strobelite Plus 2-Light Kit); \$1,080 (Strobelite Plus 3-Light Kit).

DP



CONTINUOUS LIGHTS FOR STILL & VIDEO

CONSTANT LIGHTING SOLUTIONS, FROM TRADITIONAL FIXTURES TO NEW LED SYSTEMS | BY DAVID WILLIS

Continuous lighting solutions have seen a lot more attention over the last few years thanks to the need for a constant light source that will provide illumination for both stills and video. Traditionally based on tungsten, halogen and fluorescent bulbs, the advantage of continuous lights for still shooting is that the effects can be seen in the real world as you make changes to lighting positions and add or subtract lights or lighting-modification tools. On the other hand, they produce a lot of heat and consume far more power than strobes, though LED technology is making large steps toward mitigating that downside. Traditional sources of continuous lighting are much more affordable than the relatively new technology of LEDs, however, and you still get more bang for your buck in terms of light output with a traditional lamp.

That being said, LED lighting technology has made leaps and bounds over previous-generation bulbs, offering very

minimal color shift during dimming and LED modules that better cover spectral gaps in the light output for more true colors. The efficient bulbs are able to produce a comparable amount of illumination to traditional fixtures, although they have far less power draw, which makes them a power- and dollar-saving boon over the long term, especially useful for studio use where the minimal heat output also helps to keep closed-off environments far cooler.

More compact LED fixtures also can be used as an on-camera light source because they can feed from typical AA or AAA batteries. LED technology is very promising in terms of the technology, as well. Unlike traditional bulbs that have to be swapped out, many LED models allow you to dial in color temperatures in a general range from tungsten to daylight and often a mix between the two, with the promise of even more versatility to come.

LED: PROS & CONS

PROS

- Low heat output
- Low power consumption
- Adjustable color temp
- Long-life bulbs

CONS

- Can be expensive
- Lower light output



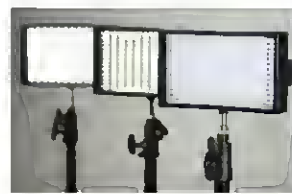
FLASHPOINT

Flashpoint offers a number of affordable, simple-to-use LED units for meeting basic lighting needs on camera and off. With an estimated working time of five hours on two Flashpoint Sony replacement batteries (the purchase includes one), the Flashpoint 312 LED fixture produces the equivalent output of a 100-watt bulb and offers a mix of daylight and tungsten, as well as a diffusion panel for softening the spread of light. Estimated Street Price: \$139 (Flashpoint 312 LED); \$13 (Flashpoint Sony Replacement Battery NPF550).



FLOLIGHT

The Microbeam series of lights from FloLight is available in multiple versions: two on-camera models, the MicroBeam I28 or MicroBeam 256, and two studio light stand models, the MicroBeam 512 or MicroBeam I024. Each is available in daylight or tungsten at approximately 5600K and 3200K, respectively, with your choice of a 30° (spot) or 60° (flood) beam angle. Additionally, you can choose from Panasonic or Sony batteries for up to three hours of runtime. List Price: From \$299.



IKAN

The iLED 312 from iKan offers a compact (7.5x1.25x4.5-inch) on-camera unit with durable metal construction and 312 individual LEDs that present a range of color temperatures between tungsten at 3200K and daylight at 5600K. Rather than standard AA batteries, the iLED 312 includes two Sony L Series DV batteries with a life indicator for extended runtimes. The iLED 312 is available in multiple-unit interview kits, and creative gel kits are available for adding some color to your scene. List Price: \$399.



INTERFIT

Similar to LEDs, fluorescents are cooler to the touch than other bulbs and soft white in their output. Interfit Photographic's Super Cool-lite 9 offers a nine-bulb fluorescent array for near-daylight at 4800K-5200K output. A high-contrast reflector is included for the equivalent output of a 1000-watt tungsten light, and the bulbs can be switched on and off via the rear of the unit for adding and subtracting light as needed. The Super Cool-lite 9 is available in sets with 31-inch Octoboxes (a large eight-sided softbox) for diffusing light. Interfit also offers several affordable Cool-lite-series fixtures with fewer bulbs and less output for use as fill, highlight, background or kicker lights. Estimated Street Price: From \$235 (Super Cool-lite 9 Fluorescent Octobox Kit).



PHOTOFLEX

The Photoflex Constellation 3 lamp head accepts three daylight-balanced fluorescent CoolStar CFL lamps for up to 450 watts of fluorescent daylight, three 1000-watt tungsten-balanced Starlite lamps for 3000 watts of output or the 8i-Pin Adapter Socket for use with ceramic G9.5 bi-pin halogen lamps. Each socket has its own switch, though both included power cords are necessary for powering all three sockets. The lamp head is compatible with every medium, large and extra-large Photoflex softbox and OctoDome. It weighs 10 pounds without the fixtures, so it may require counterbalance or a heavy-duty light stand. A case is included. Estimated Street Price: \$305.



LITEPANELS

Litepanels offers a number of LED solutions from on-camera LED units to full-scale Fresnel fixtures for filmmaking. Two on-camera models, the Luma and the Croma, both feature 0 to 100% dimming, dimensions of 6.5x4x1.5 inches and a 50° spread of 5600K daylight illumination. The Croma adds a 3200K tungsten array with a 9-watt draw in addition to the daylight LED modules for a comparable bulb output of 40 to 90 watts depending on the color temperature mix. Both lights have an average bulb life span of more than 50,000 hours, and each will power from six AA batteries or the included power supply. Estimated Street Price: \$589 (Litepanels Croma); \$399 (Litepanels Luma).



QUANTUM

The 80-LED-bulb QF26 Omicron Flash/Video Ring Light provides up to a continuous 90 minutes of bright white light in Video Mode. The ring light is designed to be "chromatically correct" with a mixture of color LEDs and white LEDs for a high level of color accuracy. Quantum offers a unique professional, third-party on-camera flash system, so for still shooting, the Omicron is fully TTL- and manual-compatible with Canon and Nikon cameras when using the Quantum TRIO QF8 or Qflash T5d-R flashes and any battery in their Turbo family of rechargeable batteries. When using the Omicron strictly in Video Mode only, you need to use either the Turbo 3 or Turbo 8 Blade rechargeable battery. Estimated Street Price: \$799.



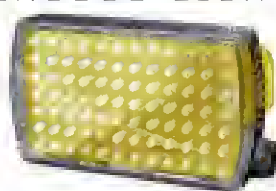
LOWE

With 50,000 hours of average life span, the 24.9x14.9x3.5-inch Lowe Prime LED panels for studio work are available in tungsten (3200K) or daylight (5600K). Lowe Prime models offer accurate color reproduction with a high CRI (Color Rendering Index) rating of 91+. The lights output a 50° beam, and optional honeycomb grids channel the spread for even more contrast. A PRM-420 barn door set is also available with a Prime Lite Diffusion Gel for shaping and diffusion. List Price: \$2,775 (Lowe Prime LED 400); \$2,150 (Lowe Prime LED 200).



ROTLIGHT

The 80-watt-equivalent Rotolight RL48-B compact LED RingLight slips over an on-camera shotgun mic. (It also can be affixed to the hot-shoe of a camera or to a light stand via the optional Rotolight Stand.) The array of 48 Ultrabright LEDs is designed to eliminate red eye and shadows with a much wider spread of 110° than conventional on-camera lights. AA batteries power the system for up to four hours, and three included diffusion filters (ND 209 and ND 298, and White Diffusion 216) can reduce light by more than 1.5 stops. The Rotolight RL48 is also available with 10 filters in the Creative Color Kit V2, and the Interview Kit steps up the offerings with two LightRings. Estimated Street Price: \$129 (RL48-8 LED RingLight Stealth Edition); \$199 (RL48 Creative Color Kit V2); \$349 (RL48 Interview Kit); \$59 (Rotolight Stand for RL48-A and RL48-8).



MANFROTTO

The series of on-camera 5600K LED lights from Manfrotto begins with the tiny MLI20 Pocket-I2 LED light, whose small size and effective price point make it an ideal choice for use as an accent light because it can be hidden easily in a scene. For still photographers working with video, the series also includes the top-of-the-line ML840H Maxima-84 Hybrid with 84 LED bulbs. The ML840H includes a flash function triggered by a sync cord that will increase the maximum brightness by two stops for a burst of light four times the amount of the continuous light output. The DUO ballhead hot-shoe design also allows multiple ML-series lights to be mounted together for more illumination. Estimated Street Price: \$39 (MLI20 Pocket-I2 LED); \$279 (ML840H Maxima-84 Hybrid).



WESTCOTT

Westcott's Spiderlite TD series of lights incorporates several lamp heads on a single fixture for up to 1200 watts of equivalent output. Ranging from three (TD3) heads to six (TD6), the Spiderlite series is compatible with fluorescent bulbs for 5500K daylight or warmer 3200K tungsten. Each light can be switched on or off on its own channel, and a built-in adapter ring is included for quickly adding a softbox. They're packaged in several cost-saving kits, and halogen bulbs are also compatible for 3000K color temperature. Estimated Street Price: From \$279.

DP

CAMERA SUPPORTS

FOR SHARP PHOTOS AND VIDEO, CHOOSING THE RIGHT OPTION FOR STEADYING YOUR CAMERA IS ESSENTIAL | BY KIM CASTLEBERRY

Using the right support system can make all the difference between a blurry and a sharp photo or shaky and smooth video clips. The key factor is figuring out what kind of shooting you like to do the most and then choosing the most appropriate option. Whether it's a tripod that works for photo and video, a simple monopod or a portable video rig, few accessories are as crucial as this one for capturing great images.

TRIPODS

After the camera and lens, photographers often rank their tripod as the most valuable piece of gear in their kit. Since video is a DSLR standard now, consider a tripod with features that can support both still photography and video, such as a fluid head for making smooth tracking and panning movements.



CULLMANN

The Cullmann Titan 935's clamping lever is positioned at a working height for quick mounting and dismounting, ensuring you can work with each tripod leg from a convenient standing position without having to bend down. The air-cushioned center column is made of anodized aluminum tubing that can withstand accidental drops. If you do a lot of landscape shooting, any dirt on the outside has no effect on how the legs clamp. Waterproof seals on the legs allow the tripod to be used in up to about 20 inches of water. Estimated Street Price: TBA.



DAVIS & SANFORD

If you do a lot of still and video work, the Davis & Sanford

Magnum XGI3 tripod and FXI3 head make for a good combination. The fluid-dampened head is made from an aluminum alloy, can handle up to 13 pounds and pans 360° with 90° downward and 60° upward tilt, as well as landscape and portrait tilt modes. There are three spirit levels, and the pan-and-tilt handle delivers a comfortable grip. The tripod's legs extend from 8 inches to 72 inches. Estimated Street Price: \$189.



GIOTTOS

The legs of Giottos Vitruvian VGR tripods use a "reverse technology" system so that when collapsed they fold through 180° to "surround" the tripod center column and head. The latest versions fold to an even more compact length and have two-piece center columns, allowing you to shoot from very low angles. Holding up to 13 pounds, the five-section carbon-fiber VGR8265-M2N weighs 3.7 pounds with height ranging from 16.1 inches to 66.6 inches (with center column extended). Convert it to a monopod by attaching the center column to one of the legs. Estimated Street Price: \$499.



GITZO

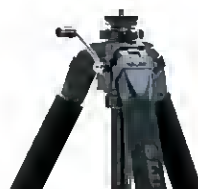
If you're ready to invest in a higher-end model, look to the Gitzo Systematic Series, which received a fresh update this year. Stronger and more stable than the previous generation, the latest models were built using new construction and bonding methods that double how much weight the 6X carbon-fiber legs can support. The legs feature Gitzo's G-lock twist-lock system, which strengthens their rigidity and enables fast setup. The Series 2 GT2532S model weighs less than 4 pounds, yet supports up to 55. Height ranges from 3.9 inches to 53.5 inches. List Price: \$889.



SACHTLER

The lightweight Sachtler Ace tripod system has an 8.8-pound load capacity, 5-step counterbalance for quick camera balancing and positioning, and a drag system with three horizontal and three vertical steps. This

allows for precise panning and tilting, as well as choosing a drag setting suitable for any situation. The fluid head is designed specifically for video DSLRs and small HDV camcorders. Estimated Street Price: \$535.



SLIK

When you need some height to get the shot, the SLIK Grand Pro CF-4 tripod extends to 100 inches. The 8.4-pound tripod can hold camera systems weighing up to 30 pounds while positioned more than 8 feet in the air. To keep the CF-4 light and improve rigidity, carbon-fiber leg tubing is used. You can shoot as low as 9 inches from the ground using a short column (not included), and adjustable Twist-release leg locks allow you to change the angle of each leg individually. Estimated Street Price: \$899.



VANGUARD

With all the features of full-size tripods, the compact Vanguard Nivelor 244BK and 245BK collapse in seconds and have legs

that quickly lock and unlock by simply turning the feet. The tripods are designed for mirrorless interchangeable-lens cameras and small DSLRs, with load capacities of up to 6.6 pounds. The legs can be positioned at 25° and 50° angles, while an innovative open canopy lets you invert the Quick Fold Central Column for taking macro shots. The rotating head pans 360° and tilts side to side. Estimated Street Price: \$139 (244BK); \$149 (245BK).

VIDEO RIGS

Capturing smooth moving pictures requires different tools than those for taking sharp stills. While providing balance, video-stabilization rigs add other features and options for recording more dynamic-looking and higher-quality footage without giving up portability. Most of these kits are modular, with a base unit for attaching follow-focus units, matte boxes and other extras that can improve your video-making experience.



FLASHPOINT

The Flashpoint All-Inclusive DSLR/DV Cinema Bundle is a three-part kit consisting of the Flashpoint Matte Box System II, Follow Focus Pro II and DSLR Shoulder Rig with Rails and Quick Release. The matte box's hinged, fold-flat flag system can be angled to prevent stray light from striking the front of your lens. The follow-focus unit quickly attaches to the rig and connects, using a geared system, to your lens' focusing ring. The rig has a modular design that incorporates a dual 15mm carbon-fiber rod system, comfortable handgrips and a cushioned shoulder pad. Estimated Street Price: \$599.



MANFROTTO

Adjusting your shot in the middle of a scene is sometimes tough to do when recording video. The Manfrotto SYMPLA rigging system aims to make this a little easier with self-supporting clamps that stay in place even before they're locked and easy-locking ball-joint handgrips. The steel-and-aluminum rig can be configured in seconds, without tools, and accommodates a wide range of DSLRs, camcorders and lenses. Mounting options include holding it like a "steering wheel" through an optional attachment that allows you to shoot from more creative angles. Estimated Street Price: Varies.



NOVOFLEX

Combining the Novoflex MMR uFLY and MMR BLUEBIRD creates a full video-stabilization kit for comfortably handling your DSLR on long shoots. The three-sided support arm of the MMR uFLY allows you to hold the camera above or below, with long, Arca-compatible camera plates for sliding the camera into the best position for framing and balance. The MMR BLUEBIRD gives you a chest support, which distributes weight evenly, and a neck strap provides more comfort and stability. Two handgrips help you operate the camera with greater ease and precision. Estimated Street Price: \$1,040 (MMR uFLY); \$1,399 (MMR BLUEBIRD).



REDROCK MICRO

Turning your DSLR into a versatile filmmaking system is possible with the Redrock Micro ultraCage DSLR. Features include industry-standard 15mm bottom rails for accessories such as a matte box, follow focus or lens support. The built-in 15mm top rail lets you keep a camera-top monitor or remote focus motor on your camera at all times, and there are 22 mounting points (¼- and ⅜-inch) for attaching other accessories. Estimated Street Price: Starts at \$595.

MONOPODS

A monopod delivers fast and easy support when you can't make room for a tripod. Besides weighing less, these one-legged units allow you more freedom to move the camera around when tracking scenes with a lot of action. Just remember that because you have to hold it, vibrations are possible.



MONOSTAT

Making both aluminum and carbon-fiber models available, Monostat of Switzerland offers a collection of monopods that are known for their Swivel Toe Stabilizer foot, which enables steady shots at angles up to 60°. Models in the lineup offer up to five sections of extension, and Anti Rotation Tubing allows for easy opening and closing in any position. The Monostat RS16SK ART monopod extends from 16.9 inches to 56.3 inches, weighs 1.4 pounds and can support 33 pounds. Estimated Street Price: \$184.

TABLETOP

If leaving the tripod behind has become habit because it's too large or heavy, consider using a mini-version. They're light, fast to set up and convenient to maneuver. Make sure the one you choose can support your camera system.



REALLY RIGHT STUFF

Weighing just 5.1 ounces and supporting a hefty 100 pounds, the Really Right Stuff TFA-01 Pocket Pod is an ideal travel companion whether you're flying, hiking or hitting the road. It's 6 inches tall with the legs folded underneath, and durable rubber feet enhance the tripod's grip on challenging surfaces. Keeping the legs together basically turns the Pocket Pod into a mini-monopod. It's made out of anodized aluminum and stainless-steel parts. Estimated Street Price: \$9B.

SHOULDER



BUSHHAWK

For some photographers, a rifle-like shoulder support system such as the BushHawk 320D is comfortable and easy to use. The device is particularly useful when shooting with longer telephoto lenses. You can use the BushHawk 320D either left-handed or right-handed. The included shutter-release cord triggers the camera so you can hold the system comfortably in both hands through the double-handed grip. It's available in Canon, Nikon, Olympus, Pentax and Sony mounts. List Price: \$299 (Deluxe Kit); \$399 (Professional Kit with quick-release system). DP

BAGS & CASES

FROM COMPACT SLINGS TO FULL-SIZED ROLLING CASES, THERE'S A CAMERA BAG FOR EVERY NEED

BY KIM CASTLEBERRY

Whether you're hitting the road, the airport or a local park, the process of getting your camera equipment from point A to point B is a smooth one when using the right kind of carrying system. No longer lacking in style or versatility, bags these days are all about options with many models providing multiple ways of transporting your gear comfortably. From over one or both shoulders to around your waist or on wheels, with so much variety, just make sure to think about the gear you like to use, along with how and where you tend to shoot.

SHOULDER BAGS



BILLINGHAM

Here's a popular choice among photographers who prefer a more traditional look. Billingham has redesigned one of its most popular models, the 335 SLR Camera

Shoulder Bag. Retooling the zipper opening so that the zip panels lie out of the way behind the inside pockets, the bag features what Billingham calls the TukTop. This allows the main zip, with its double pullers, to be tucked out of the way when opened. While you're shooting, the zip can stay open with your gear kept out of sight and protected by the main flap. The bag holds two DSLRs, three lenses and accessories. Estimated Street Price: \$389.



CRUMPLER

Known for combining design and durability in a smart, stylish way, Crumpler has a new collection called Extravaganza, which is the bag manufacturer's first venture into professional luggage for photographers. The low-profile, highly functional Bronzed Extravaganza holds

a DSLR, a couple of lenses, a flash and accessories. The sturdy shoulder strap comes with heavy webbing, and there's a double-zip entry for easy access to your stuff. It holds a 15-inch laptop and has 14 dividers. The other two models, The Flaked Extravaganza and The Gourmet Extravaganza, can hold more gear. Estimated Street Price: \$295 to \$395.



DOMKE

With a long-standing reputation for delivering camera bags with a classic design and sturdy build, Domke has designed its RuggedWear collection with durability, space, weight and versatility in mind. The Quick-Shot Sling is easy to wear, distributing the weight of the camera evenly for maximum comfort. The exterior is made of weather-tough cotton canvas coated in non-solvent, eco-friendly waxes that protect the bag in inclement weather and give it a distressed look. The soft, well-padded interior protects your gear from scratches. Camera access is instant with the dual-zippered top. It holds a camera with lens, plus an additional lens and extras. List Price: \$136.



CLIK ELITE

Whether you're drawn to the beauty of the outdoors or a jungle of the concrete variety, the versatile Click Elite Magnesian bags are designed for all kinds of shooters. Modular panels and lens cradles allow you to customize the inside for carrying gear the way you want to. There are three sizes, with the smallest fitting a standard DSLR, lens and flash, and the largest holding a pro DSLR, two lenses and flash. Each has a padded camera bay with adjustable dividers and a zippered inner cover that adds more protection. There's also an inner pocket that holds a notebook or iPad. List Price: \$120 to \$160.



MOUNTAINSMITH

The Tour FX from Mountainsmith is more a waist pack than a shoulder pack. Grabbing your camera for those impromptu shots is easy to do simply by loosening the waist strap and swiveling the bag around to your front. Along with holding a DSLR and extra lenses, the main compartment can expand an extra two inches for handling longer lenses. An ergonomic hip belt with stabilizing straps and a foam-padded back provide a snug, comfortable fit. The padded shoulder strap can be removed if you prefer using the dual carrying handles, which let you use the bag like a briefcase. List Price: \$100.



TAMRAC

Camera bags can sometimes call unwanted attention to themselves. In creating the Aria series, Tamrac delivers stylish, discrete bags that you can take into crowded, bustling environments without advertising your gear. Made from a smooth fabric that feels like silk but is durable, the bags have a courier-style look to them. The Aria 6 holds a DSLR with an attached lens, another lens and a flash or two lenses. Plus, there's a foam-padded compartment for holding a tablet, as well as a zippered, pleated front pocket for accessories and other items. List Price: \$99.

BACKPACKS



KATA

When you need to have lens options, the sleek Kata D-Light DR Digital Rucksack should do the trick. The upper compartment holds photo gear or personal stuff. If you remove the padded bottom insert, you can convert it from a camera bag to a regular nonshooting daypack. With three sizes to choose from, the D-Light DR-467 offers the most room, holding a DSLR and mounted lens, three to four more lenses, a flash and laptops up to 17 inches. In the middle is the DR-466, which carries the same amount of gear except for a smaller 15.4-inch laptop. And the smallest, the DR-465, stores fewer lenses and no laptop. List Price: \$89 to \$109.

Tamron

SP 70-300mm Di VC USD



Tamron's premium telephoto zoom delivers best-in-class resolution, fast autofocus and Vibration Compensation

Tamron's SP 70-300mm Di VC USD excels with resolution and contrast superior to comparable lenses—even those that cost considerably more.

Designed for use with both full-frame and APS-sensor cameras, the SP 70-300mm Di VC USD is available for Canon, Nikon and Sony* cameras. When used with an APS-sensor camera, the optical range is equivalent to approximately 109-465mm. Tamron's Vibration Compensation technology automatically corrects for camera shake and allows you to use slower shutter speeds in lower-light conditions.

The lens also features Tamron's Ultrasonic Silent Drive (USD) AF system, as well as LD and XLD elements to deliver perfect sharpness, excellent contrast and rich colors.

*Sony mount is w/o VC

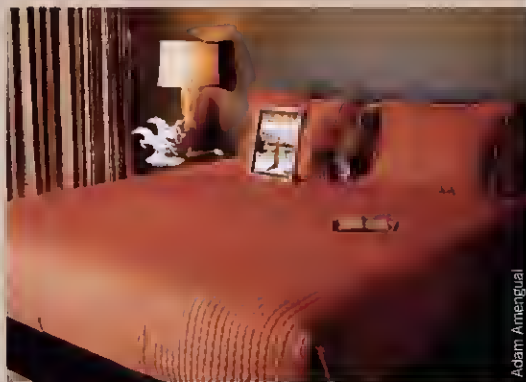
Di SP USD VC

To learn more, visit
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Adam Amengual



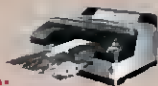
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First Prize, Photojournalism & Sports Category:

\$500 cash and an Epson Stylus Pro 3880 printer.
Estimated total prize value: \$1,795

First Prize, Fashion & Beauty Category:

\$500 cash and an Epson Stylus Pro 3880 printer.
Estimated total prize value: \$1,795

First Prize, Fine Art Category:

\$500 cash and an Epson Stylus Pro 3880 printer.
Estimated total prize value: \$1,795

digitalphotopro.com/emergingpro

Visit the website for all the details and to see
recent submissions in the online galleries.

Entries must be received by December 4, 2012.

EPSON
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SONY
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PhotoPro



LOWEPRO

Sometimes, you've just got to have your full DSLR system available without sacrificing portability. The Lowepro Flipside 500 AW is a large-capacity backpack that's particularly useful for adventure photographers. With a body-side-access design and space for pro-sized gear, the backpack holds lenses up to 500mm, delivers extra room for accessories and personal must-haves, as well as offering a lightweight, comfortable design that helps you move with relative ease. The unique, back-entry compartment keeps gear close and extra secure when you're on the move. You can attach a tripod and store a tablet in the front storage pocket. List Price: \$249.



VANGUARD

For those of you who spend a lot of time shooting outside, the Vanguard Kinray Series has your needs covered with room for a DSLR and attached telephoto lens, plus another lens and accessories, and there's also a tripod attachment. You can grab your camera quickly through the large front opening, and there are plenty of pockets for holding extras. This pack is versatile—removing the thick cushioning and dividers allows you to convert the backpack into a daypack for everyday use. It's comfortable, too, with length-adjustable shoulder straps and an adjustable chest harness. Estimated Street Price: \$149 to \$249.

HARD CASES



FLASHPOINT

The ruggedly built Flashpoint SealTite cases feature generous interior cushioning, high-impact plastic construction and tight-fitting neoprene gasketing along every edge for dust-proof and watertight protection. A built-in purge valve regulates the correct amount of internal pressure based on the environment. Two layers of foam allow you to customize how your gear fits, and there are stainless-steel pins in the handle, latches and hinge. Seven sizes are available. Estimated Street Price: \$79 (SealTite I510).



PELICAN

Delivering a high degree of protection, Pelican hard cases are built to handle the most extreme environments. Open-cell-core construction is a key feature found in most Pelican models, including the I510SC and I560SC Studio Cases. The lids have polymer O-rings that seal out dust and water. There's also an automatic pressure-equalization valve that stops moisture from entering the case, but makes opening it easy at any altitude. For air travel, both models will fit in most overhead bins. The dividers in the main compartment can be custom fit, and you can add foam, if desired. Estimated Street Price: \$379 (I510SC); \$485 (I560SC).

Your chances of finding digital filters better than Heliopan?

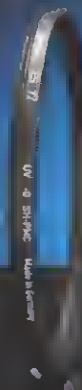
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37% less ring thickness eliminates vignetting.

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Heliopan SH-PMC digital filters have 8 metallic coatings per side

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ESSENTIAL ACCESSORIES

FILTERS, POWER CHARGES, MEMORY CARDS AND OTHER EXTRAS CAN GO A LONG WAY IN IMPROVING YOUR SHOOTING EXPERIENCE
BY THE EDITORS

Figuring out the right camera and lens probably takes up most of the time you spend thinking about gear. But the smaller stuff, like a fast memory card, special-effects filter or cleaning gadget, often can make the time you spend shooting more productive—and even just more fun.



B-GRIP

An alternative to a camera neck strap, the b-Grip EVO belt holder keeps your OSLR firmly and comfortably at your side. The base attaches to a waist belt and a quick-release plate connects to the camera's tripod socket, so your OSLR stays in place without swinging until you need it. Optional accessories, such as a tripod adapter and hand strap, are also available. Estimated Street Price: \$59 (belt holder).



COTTON CARRIER

Cotton Carrier offers many useful solutions for transporting your camera from one location to the next. The basic system holds one or two OSLRs and comes with a unique one-size-fits-all adjustable vest. The Carry-Lite version consists of a cotton waist belt with a shoulder strap and side holster for carrying a camera at your side. For attaching a camera to your backpack or a second one to a camera vest, the StrapShot is ideal for photographers who are often on the move. Estimated Street Price: Varies.



DELUXGEAR

The Lens Bumper from DeluxGear absorbs impact and prevents scrapes, scratches, dents and cracks to your lenses. The exterior is a tough 0.08-inch Santoprene outer cover, while the cushioned, water-resistant inner core is made of 0.25-inch-thick closed-cell neoprene. Slide it over the end of your lens or hood, or reverse the hood over the lens and slide the Lens Bumper over the inverted hood. List Price: \$24 to \$74.



LENSPEN

Whether shooting with a DSLR or a point-and-shoot, LensPen makes a cleaning solution for your camera. All the models are small enough for fitting in a camera bag or even your pocket. Each one includes a soft, retractable brush for removing loose dust and a cleaning tip with a carbon compound for removing fingerprints and other difficult marks. List Price: \$14.



HOODMAN

Keep your lenses clean with Hoodman's Lens Cleanse natural cleaning kit. The towelettes are made of soft natural wood fibers that won't scratch the glass. Organic plant enzymes make up the cleaning solution, which breaks down grime without damaging the coatings on your lenses and filters or the environment. Each kit has a wet and a dry towelette, and they come in single units or packs of 12. List Price: \$9 (12-pack).



NOVOFLEX

Boost your smartphone's picture-taking capabilities with the Novoflex Phone Kit. It includes a mini-tripod, a ballhead, a suction-cup mount for fastening to smooth surfaces and a universal mount that can be attached to the ballhead with one click. There's also a special holder for iPhone 4 and 4S shooters. The ballhead and tripod can support a load capacity of up to 6.6 pounds, making it useful for point-and-shoots and mirrorless cameras, too. There's also an optional iPad holder and a series of clamps to mount it to bikes and motorcycles. Estimated Street Price: \$159.



PHOTTIX

For Canon EOS 5D Mark III shooters, the Phottix BP-5DIII Multi Function Battery Grip holds one or two LP-E6 or six AA batteries and features AF/On, AE lock/FE lock and AF point selection controls, a vertical shutter button, a command dial and a power switch. Designed to provide a comfortable vertical shooting position, the grip has an additional shutter release and scroll wheel for accessing camera functions when shooting vertically. The grip also has a tripod socket. List Price: \$129.



REALLY RIGHT STUFF

When shooting on a tripod, the Really Right Stuff L-Plate bracket makes it easy to change your DSLR's positioning from horizontal to vertical without having to move the ballhead and affect its stability. Along with the Arca-style mounting plate on the bottom, there's an extension arm for mounting the camera in a vertical position. With the camera still mounted on the tripod, you just reattach the quick-release plate in the vertical position on the bracket. Estimated Street Price: Starts at \$120.



UPSTRAP

Keep your camera from sliding or needing to be constantly readjusted using the XX Pad from UPstrap. Designed to prevent the camera strap from sliding down your shoulder, the XX Pad allows you to carry a range of cameras that vary in weight. UPstrap

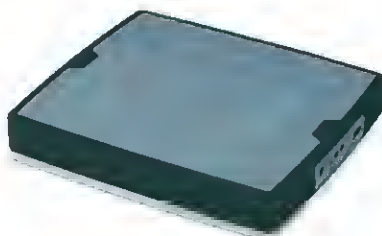
offers nylon or Kevlar webbing, and a heavy-duty quick-release system is available for the large and medium pads. Estimated Street Price: Starts at \$33.



WACOM

Pan, zoom and rotate images with one hand while using the other to sketch or paint using the Wacom Cintiq 24 HD touch. The tablet's multi-touch functionality and gesture-support technology allow for a more natural workflow experience. The counter-weighted stand can be adjusted to a position that you're comfortable working in, with the display capable of reaching over the edge of the desk so that it rests in your lap, as desired. List Price: \$3,699.

POWER



BRUNTON

The Impel2 is the largest solar-power storage battery in Brunton's extensive lineup. It charges nearly any electronic device through the built-in USB, 12v, 16v and 19v outputs, with similar power and capability of other solar chargers, but with half the size and weight, so you can connect it directly to your iPhone, iPad, GPS device and more. The water-resistant, durable housing can handle tough conditions. List Price: \$349.



GOAL ZERO

The Goal Zero Sherpa 50 portable recharger weighs just 14 ounces, half of its predecessor, yet is able to output the same 50-watt-hour power capacity. It measures less than

five inches on each side and is only 1.5 inches thick so it fits easily into your bag. The Sherpa 50 charges fully via solar panel in five to 10 hours or within two to three hours using a wall outlet. List Price: TBA.

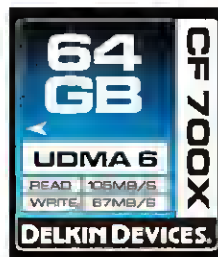


HÄHNEL

The Hähnel Giga T Pro II is a wireless remote control that features a self-timer, interval timer, long exposure setting and exposure count settings for time-lapse, wildlife, astral and studio photography. It also can be used as a short cable shutter release to eliminate camera shake. You can create a basic setup that allows you to program a timed shooting sequence, defining the delay, number of shots, interval shots and more. Estimated Street Price: \$99.

MEMORY CARDS

Shooting with high-megapixel DSLRs, especially continuous shooting in RAW format or full HD video, requires a fast memory card. The data-transfer rate is referred to with an "x" rating—600x or 1000x. Each x equals a minimum sustained transfer rate of 150 KB/s, and all other speeds are expressed as multiples of that speed. For example, 600x is 90 MB/s (0.15 x 600) and 1000x is 150 MB/s (0.15 x 1000). Keep in mind that you want to use the fastest card that your camera can handle. A card that's too fast for your camera won't speed up shooting, and one that's too slow won't be able to keep up.



DELKIN

The Delkin 700X CompactFlash memory cards deliver transfer rates of up to 105 MB/s, with write speeds of up to 67 MB/s. With that kind of speed, the cards are ideal for using with high-performance DSLRs that have video modes for slow-motion recording. The cards are available in capacities of up to 128 GB. Estimated Street Price: \$320 (64 GB).



HOODMAN

If your camera is SOXC-compatible, the Hoodman RAW Steel Ultra High Speed UHS-I memory cards are now available in this format and are steel-plated to prevent damage or breakage in rough shooting environments. They have 45 MB/s read and write speeds, and are offered in capacities of up to 64 GB. List Price: \$159 (64 GB).



KINGSTON

With transfer speeds clocking in at up to 90 MB/s, the Kingston CompactFlash Ultimate 600x cards are a fast and reliable option, especially for shooting video at 1080p. The cards offer plenty of room for recording HD video, as well as high-resolution stills in RAW, JPEG, TIFF and other file formats. List Price: \$95 (16 GB); \$155 (32 GB).



LEXAR

The high-capacity Lexar Professional 600x SOHC and SOXC UHS-I cards deliver a minimum guaranteed read transfer speed of 90 MB/s. The card is especially useful if you do a lot of video work on a camera capable of 1080p recording. Capacities of 16 GB and 32 GB are available for the SOHC card, and 64 GB and 128 GB are available for the SOXC cards. List Price: \$149 (32 GB); \$279 (64 GB); \$499 (128 GB).



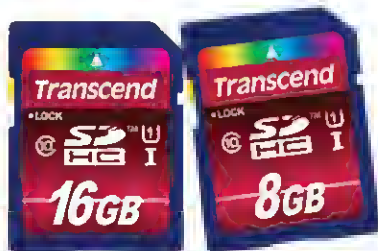
PNY

When shooting with the PNY Pro-Elite Plus Series Hi-Speed SDHC memory cards, you're set for capturing high-speed action shots and video clips. The cards have write speeds of up to 80 MB/s, and come in 8 GB, 16 GB and 32 GB capacities. Like most other cards, they're fully water-, shock- and temperature-proof. List Price: \$139 (32 GB).



SANISK

Capture up to 10 hours of full HD video using the 128 GB SanDisk Extreme SDXC UHS-I memory card. Read and write speeds clock in at 45 MB/s, allowing you to capture high-resolution images in full burst mode and quickly transfer those files to a computer. List Price: \$399.



TRANSCENDO

The Transcend SDHC Class 10 UHS-I memory cards store up to 32 GB with read speeds of up to 85 MB/s and write speeds of up to 45 MB/s. The fast transfer rates and large capacity are ideal for fast continuous still shooting and smooth capture of 1080p HD video. List Price: \$89 (32 GB).

FILTERS

There are three filters that are invaluable to improving your photography: circular polarizers, neutral-density filters and graduated neutral-density filters.

CIRCULAR POLARIZERS.

A circular polarizer reduces surface glare and reflections in your images, as well as improves color saturation.



B+W

With high-quality optical glass, the B+W Circular Polarizer with Multi-Resistant Coating delivers top-notch image quality. Exposure compensation is about two f-stops. Estimated Street Price: \$128 (77mm).



HOYA

The Hoya EVO Circular Polarizer uses an improved Super Multi-Coating formula for reducing or eliminating reflections. The coating is overlaid with a clear water- and stain-resistant coating that's easy to clean. Estimated Street Price: \$172 (77mm).



PRO-OPTIC

The Pro-Optic Circular Polarizer is thin so it doesn't cause vignetting with wide-angle lenses. Estimated Street Price: \$44.

NEUTRAL-DENSITY FILTERS

A neutral-density (ND) filter reduces how much light reaches your sensor so it's ideal for using when a scene is too bright.



KENKO

The Kenko Zeta ND4 and ND8 neutral-density filters reduce the amount of light entering the lens in an equivalent of two and three stops, respectively, useful for getting that dreamy, cotton-candy look to moving water. Estimated Street Price: Starts at \$69.



SUNPAK

Sunpak neutral-density filters are available in three strengths. The 2X model reduces light by one *f*-stop, the 4X version by two *f*-stops and the 8X filter by three *f*-stops. Estimated Street Price: \$27 (77mm 8X).

GRADUATED NEUTRAL-DENSITY FILTERS

When a scene has extreme exposure differences, like a landscape where the sky is much brighter than the foreground, a graduated neutral-density filter helps you expose for both by putting the darker part of the filter over the sky.

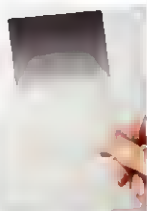


HELIOPAN

The Heliopan screw-in graduated neutral-density filters are available in strengths from one to three stops, and filter sizes from 49mm to 77mm. The Grad ND 4X provides two stops of density in a standard, calibrated rotating mount with front threads. Estimated Street Price: \$149.

SINGH-RAY

Singh-Ray graduated ND filters are available in two "soft-step" and two "hard-step" models. The soft-step filters work for scenes with no distinct boundary between the light and dark parts. The hard-step filters are ideal for scenes where sky and foreground areas are separate, usually at the horizon. Estimated Street Price: \$99 to \$400.



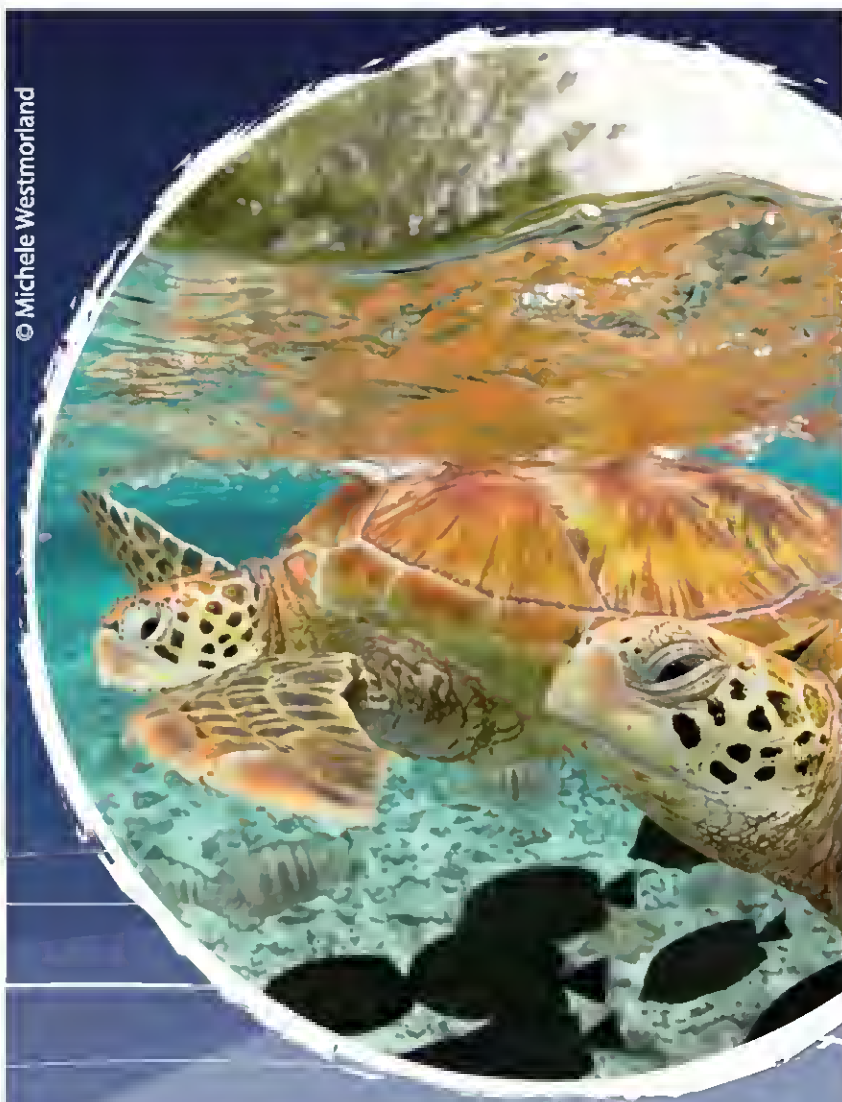
SPECIALTY FILTERS.

Filters also can create a variety of special effects in your photos.

TIFFEN

Tiffen produces nearly every kind of special-effects filter you could ask for, from Fog models that mimic the look of natural fog to Glimmerglass, which softens fine details while adding a mild glow to highlights and reducing contrast. The company also offers filters for black and white, contrast control, tone control and color. Estimated Street Price: Varies.

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DESKTOP PHOTO PRINTERS

THE BEST PRINTERS TO CONSIDER FOR AT-HOME PHOTO PRINTING AND THE TECHNOLOGY THAT MAKES THEM GREAT
BY WILLIAM SAWALICH

If you're like a lot of photographers, you have a high-quality DSLR and at least a few great lenses. You've spent time and money honing your craft, and you have the skills to produce an outstanding photograph. Maybe you're even a little bit of a tech geek about megapixels or sensor noise or sharpening; you probably pay attention to the littlest details.

And after all that, you drop the ball. You only look at your pictures on screen, at low-resolution, where you can never enjoy the full benefit of all that image quality and photographic know-how. Why settle for displaying your high-quality, high-resolution, beautiful digital images as little bitty, web-sized JPEGs? The fine art of photography culminates in making prints—big, beautiful prints, in color and black-and-white.

With the current crop of awesome inkjet photo printers available from Canon and Epson—two manufacturers who cater specifically to the photographic market—there's almost no excuse for not printing your best photographs. Before you make a printer purchase, here's what you need to know about the technology that makes beautiful desktop prints a reality.

PRINTER TECHNOLOGY

Inkjet has become the de facto standard for desktop photo printers, with two subtle variations. One approach, the thermal inkjet printer, uses heat to

squeeze ink droplets out of the print-head and onto the paper. This is the preferred technology of Canon. The other type of inkjet printhead is called piezoelectric, and it uses an electrical charge to mechanically push drops of ink onto the paper. This is the print-head Epson uses. Piezoelectric print-heads offer the benefit of multiple droplet sizes, whereas the thermal approach can allow for more nozzles and, ultimately, faster printing. Both are equally capable of producing beautiful prints.

No matter how they're sprayed, those droplets of ink are measured in picoliters (one-trillionth of a liter), and they're a big factor in the quality of a print. Because the appearance of continuous tone is achieved by placing tiny dots incredibly close together on the surface of the paper, being able to distinguish individual dots is bad. So manufacturers place a premium on making their droplets so small and densely packed as to appear invisible, creating the continuous-tone effect.

The use of multiple inks also helps render smoother tonal gradations and truer colors. Early inkjets used four inks, but today eight or more are common. Instead of just cyan, magenta, yellow and black, many printers now include additional inks that are lighter versions of each of those colors, or different colors that aid in producing certain tones more vividly and accurately.

Another variation in printer options

is based on the print size—how large a sheet of paper can the printer handle? Can it print on that paper from edge to edge to create a "full-bleed" enlargement? While almost all desktops accept standard 8.5x11-inch letter paper, higher-end models up the paper size to 13 or even 17 inches wide. The ability to create large prints makes pro-style desktop photo printers more flexible, more desirable and more expensive. For even larger prints, you have to step up to bigger, more expensive freestanding models—or outsource the work to a lab.

The holy grail of desktop printing has long been the ability to render beautiful black-and-white prints from a color printer. Because multiple ink colors have to be combined to create gray tones, neutral gray output has long been quite a challenge. The first way photographers dealt with this was to convert a printer into a strictly black-and-white machine. It worked, of course, but it wasn't especially practical. So now manufacturers offer additional black and gray inks in some models specifically to improve the quality of black-and-white prints they can produce. When paired with the appropriate paper, darkroom-caliber prints are much easier with a printer that offers extra gray and black inks.

One more thing about ink. There are two primary camps: pigment and dye. Both are capable of producing beautiful photos, but the difference

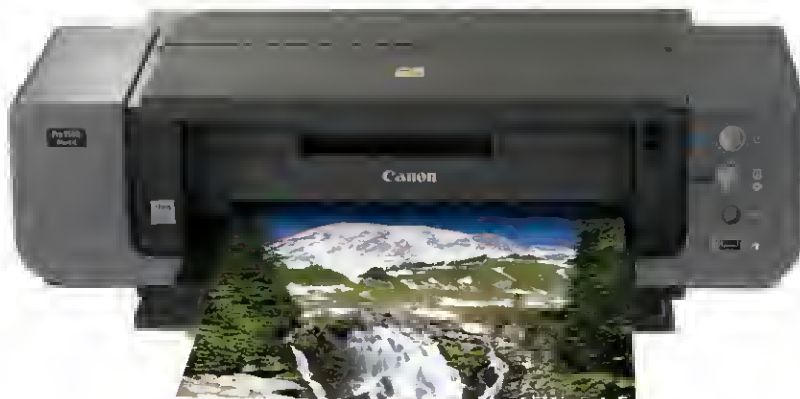
basically boils down to this—dye inks aren't as "archival," or permanent, as pigment inks, but they generally produce bolder, more vivid colors. If it's important to you to ensure your prints will remain durable and light-

fast for over a century, pigment ink might be your best bet—as long as you're using it with an equally archival paper stock. If you want an edge in boldness and the most vivid colors, consider dyes.

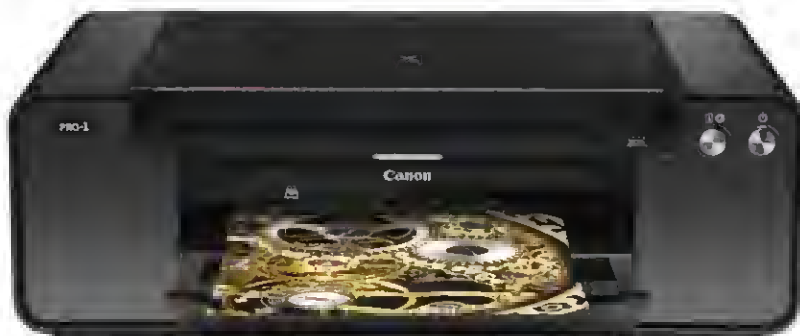
The most important thing to remember is that your best photographs should not be confined to computer screens—they're made for printing. Consider these six desktop photo printers as ideal choices for at-home printing.



▲ CANON PIXMA PRO9000 MARK II



▲ CANON PIXMA PRO9500 MARK II



▲ CANON PIXMA PRO-I PROFESSIONAL

CANON

Canon's PIXMA Pro9000 Mark II is a great option if you're in the market for an affordable, large-format, 13-inch-wide printer. The FINE thermal printhead outputs two-picoliter droplets—which translates to 11-million ink dots per square inch. (Good luck discerning the individual dots in that print!) Dye-based ChromaLife100 inks are designed for lightfastness up to 100 years, come in eight individual cartridges and produce a color 8x10 in only 47 seconds. Estimated Street Price: \$499.

A step up in the Canon photo printer lineup is the PIXMA Pro9500 Mark II. With 25 percent more nozzles on the printhead than the Pro9000 (7,680, up from 6,144), the Pro9500 is capable of an even more accurate approximation of true continuous-tone printing. The printer incorporates Canon's Lucia pigment inks for longer print life span without fading, and 10 ink tanks mean more refined tonal blends and better black-and-white prints thanks to the addition of two black inks and a gray ink. Without that, printers are forced to combine colors to simulate gray—which makes neutral black-and-white prints no easy feat. A second paper tray (to match the second black ink) makes switching from glossy to matte paper a breeze, and a straight-path feed option makes the printer more compatible with thicker paper stocks. Estimated Street Price: \$849.

While you can certainly make beautiful color prints with the Canon PIXMA PRO-I Professional inkjet printer, it definitely shines when it comes to producing darkroom-quality black-and-whites. Canon's newest printer is also its top-of-the-line model. It includes a whopping 12 individual pigment inks, and what makes it perfect for black-and-white prints is that five of those inks are shades of gray and black for beautiful tonalities across the grayscale. Large ink tanks help keep costs down, and dual feeding slots allow for easy printing on heavier matte stock up to 13x19 inches. With 12,288 print nozzles, fine tonal gradations and subtle differences are easily rendered in almost continuous tones. Estimated Street Price: \$999.

EPSON

The Epson Stylus Photo R2000 professional inkjet printer is a midrange photo printer with a lot of high-end features. The UltraChrome Hi-Gloss 2 pigment ink set includes eight high-capacity ink cartridges (both photo and matte black, as well as cyan, magenta, yellow, red, orange and a gloss optimizer) designed to improve skin tones and boost overall print quality by minimizing surface shine when prints are viewed at an angle. Its large size can handle borderless prints up to 13x19 inches, and it can make a beautiful 8x10 in just over a minute. Paper options abound with a straight-path feeder for heavy stock and a roll-paper support for panoramas up to 44 inches long. Plus, if you like to deliver professional-looking printed CDs and DVDs, the R2000 handles that task, too. Estimated Street Price: \$499.

The Epson Stylus Photo R3000 is also a 13-inch wide printer. It utilizes nine UltraChrome K3 pigment inks to produce color images with a wide tonal range, as well as beautiful black-and-white prints thanks to three-level black ink technology. Auto-switching between matte and glossy black inks means less waste, lower cost and fewer workflow interruptions for photographers who print on multiple surfaces. Printing can be done up to 13x19 inches in single sheets or 13x44 inches for panoramas with the roll-paper holder. The MicroPiezo printhead produces droplets as small as two picoliters for smooth gradations and prints that approximate continuous tones. Estimated Street Price: \$749.

For a few years, the Epson Stylus Pro 3880 has been the standard-bearer for compact, large-format photo printers. It's only a little larger than a typical 13x19-capable desktop unit, but it can output prints up to 17x22. Nine UltraChrome K3 pigment inks produce more vivid colors across a wider gamut and are available in higher-capacity cartridges than most printers, which helps to keep the per-print cost down. The AccuPhoto HD2 print-engine algorithm works to combine inks more accurately for better tonal blending, smoother transitions and improved consistency. The printer's advanced black-and-white mode uses three black inks for neutral gray tones and better black-and-white prints, while unique paper stocks, including ultra-thick media, are more easily accepted via three paper paths. Estimated Street Price: \$1,295. DP



▲ EPSON STYLUS PHOTO R2000



▲ EPSON STYLUS PHOTO R3000



▲ EPSON STYLUS PRO 3880

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TABLETS

ENJOY AN IMMERSIVE PHOTO EXPERIENCE WITH THESE ULTRAMOBILE COMPUTERS

BY WES PITTS

Remember that unwieldy seven-pound laptop you used to haul with you as part of your photo gear? What? You say you still do? It's time you considered a tablet!

There are a lot of tablet options out there, some more or less adept as a true photographer's companion—we have limited our selection here to models that have the ability to import photos directly from your camera.



◀ APPLE iPad

Still the tablet to beat, outselling the competition by about 2 to 1, according to a recent IDC report, the latest iPad (technically, the iPad 3, but marketed as simply “the new iPad”) is available in 16 GB, 32 GB and 64 GB variants. We recommend choosing the largest capacity for your budget because, unlike many tablets, there’s no SD card slot to add storage. You can choose Wi-Fi only or Wi-Fi + Cellular models (with service from AT&T or Verizon). One of the top features of the new iPad is the ultra-high-resolution Retina display; with 2048x1536 pixels—almost double the resolution of other tablets—your images will look stunningly good. The Apple iPad Camera Connection Kit (\$29) lets you import photos from your camera’s SD card, or connect your camera via USB directly. Operating System: Apple iOS. List Price: From \$499 (16 GB Wi-Fi).

REASONS YOU WANT A TABLET

1 | Backup & Review. Import photos from your camera or memory card, and you have a convenient backup, plus the ability to review images on a large screen—especially nice when traveling.

2 | A Great Portfolio. Want to show your best images to friends or a potential client? Photos look amazing on tablet screens.

3 | Easy To Share. Another great feature when away from home,

you can email photos, post on Facebook or upload to your Dropbox from almost anywhere.

4 | Tons Of Apps. There are currently more than 3,000 photography apps for iPad alone. Granted, not all of these are going to be useful for photographers, and some are downright silly, but you can do some pretty amazing things with your photos right on your tablet. There are also great apps for travel, too.

◀ MOTOROLA XYBOARD

Motorola's XYBOARD IO.I can be had with Wi-Fi or Wi-Fi + Cellular. The Wi-Fi only model offers 16 GB of internal storage; the Wi-Fi + Cellular option is available with 16 GB, 32 GB or 64 GB of storage, and requires service through Verizon. You can expand your onboard storage of any of these models by adding an SD memory card. XYBOARD IO.I features a 10.1-inch display with a resolution of 1280x800. Though it ships with Android version 3.2 (Honeycomb), it can be upgraded to Android 4.0 (Ice Cream Sandwich). The Camera Connection Kit for Motorola tablets (\$19) lets you connect your camera to transfer photos. Operating System: Android 3.2 (Honeycomb). List Price: From \$499 (16 GB Wi-Fi).



SAMSUNG GALAXY NOTE 10.1 (Wi-Fi) ▶

The Galaxy Note 10.1 is a Wi-Fi-only device, meaning there's no option for cellular service (you have to step down to the smaller, older 7.7-inch Galaxy Tab for that). Still, Wi-Fi is so widely available these days, you may not miss the cellular data option. The display is 10.1 inches with 1280x800 resolution, and there's 16 GB or 32 GB of storage built in, which can be expanded by adding an SD card. The standout feature of the new Note is the S Pen, developed with Wacom. This pressure-sensitive pen can be used for photo enhancement with Adobe Photoshop Touch, which comes preinstalled. The USB Connection Kit (\$19) lets you import photos from your camera. Operating System: Android 4.0 (Ice Cream Sandwich). List Price: From \$499.



KEY SPECS	Screen	Storage (GB)	SD Expansion	Size (HxWxD)	Weight
iPad	9.7 in., 2048x1536	16, 32 or 64	No	9.5x7.3x0.4 in.	1.44 lbs.
XYBOARD	10.1 in., 1280x800	16, 32 or 64	Yes	10x6.8x0.3 in.	1.33 lbs.
Galaxy Note	10.1 in., 1280x800	16 or 32	Yes	10.3x7.1x0.4 in.	1.31 lbs.

WHAT ABOUT BLACKBERRY PLAYBOOK AND MICROSOFT SURFACE?

BlackBerry's PlayBook is a solid tablet for business use, especially if you're already a BlackBerry smartphone user. But it lacks the ability to import photos directly from a memory card or camera—you can only sync photos through your computer—making it a less useful traveling companion. This feature may be added to the platform in the future, but for now the PlayBook is missing an important capability for photographers.

Microsoft recently announced a new tablet of their own, dubbed

Surface, which appears promising from the proposed specifications. Acknowledging the success that Apple has achieved by building both the software and hardware for a tightly integrated final product (unlike Microsoft's usual approach of building the software and leaving the hardware up to manufacturing partners), Surface will make an interesting competitor to the iPad and Android tablets, assuming the device materializes as planned. Surface is scheduled to be released in October 2012.

STORAGE SOLUTIONS

A smart photo-backup strategy is one of the best investments you can make. We've reached a point where big-capacity storage is very affordable—for a few hundred dollars you can virtually guarantee that your image collection will survive disk crashes and other data disasters.

Redundancy of data is the key. The more

HARDWARE AND SERVICES FOR SAFEGUARDING YOUR PHOTOS

BY WES PITTS

RAID-READY DRIVES



BUFFALO TECHNOLOGY DRIVESTATION DUO

DriveStation Duo is available in 2 TB, 4 TB, 6 TB and 8 TB configurations. It features a fast USB 3.0 connection, is compatible with Apple Time Machine, and includes backup software for Windows users. Estimated Street Price: From \$299 (2 TB).



G-TECHNOLOGY G-RAID WITH THUNDERBOLT

Designed to look great with your aluminum Mac, G-RAID with Thunderbolt comes formatted for DS X, but can be reformatted easily for use with Windows. Available in 4 TB and 8 TB. Estimated Street Price: From \$699 (4 TB).



GLYPH PORTAGIG 62

Ideal for redundant backups when traveling, the PortaGig offers capacities of 1 TB and 1.5 TB, and has both FireWire 800 and USB 2.0 connectivity in a compact enclosure that you can literally fit in your pocket. Estimated Street Price: From \$300 (1 TB).

TRANSFER RATES*

USB 2.0	FireWire 400	FireWire 800	USB 3.0	Thunderbolt
60 MB/s	49 MB/s	100 MB/s	600 MB/s	1025 MB/s

*Approximate maximum speeds. Actual transfer rates vary depending on the devices used.

copies of your images you have, the safer they are. Start with a mirrored backup of your entire library. Two hard drives linked together in a RAID 1 configuration will automatically mirror their data; if one drive fails, the other contains identical copies of your files. The hard drives featured here are

all dual-drive devices ready for RAID 1 backups.

For your most important images, consider additional protection, such as removable media like memory cards or online services. The more copies you have—in more places—the safer your images will be.

◀ LACIE 2BIG USB 3.0

The 2big USB 3.0 is available in 2 TB, 4 TB and 6 TB configurations. The 2 TB and 6 TB versions are 7200 rpm drives and include a USB 3.0 PCI card; the slower 5400 rpm 4 TB model doesn't include the card. Estimated Street Price: From \$329 (2 TB).



WESTERN DIGITAL MY BOOK STUDIO II ▶

With USB 2.0 as well as FireWire 400 and 800 connections, My Book Studio II comes in 2 TB, 4 TB and 6 TB configurations. A capacity gauge on the front gives you a visual representation of space remaining. Estimated Street Price: From \$199 (2 TB).



OWC MERCURY ELITE ▶ PRO 800 RAID MIRROR

The Elite Pro 800 RAID MIRROR is a preconfigured RAID 1 system available with up to 4 TB capacity, with eSATA, USB 2.0, FireWire 400 and FireWire 800 connections. Or, buy just the enclosure and add your own drives. Estimated Street Price: From \$349 (500 GB).



CLOUD BACKUP

INSTALL CARBONITE, and for \$59 a year per computer, your files are automatically encrypted and backed up to Carbonite's servers. Storage space is unlimited, and you can access your files on any Internet-connected computer, and even your iPhone, Android or BlackBerry smartphone, as well as from an iPad or Android tablet.

DROPBOX is free for up to 2 GB of storage, with paid plans starting at \$99 per year for 200 GB of space. Dropbox works by allowing you to specify a folder on your hard drive that will automatically sync to Dropbox servers. Dropbox also offers the ability to easily share specific files or folders with anyone (meaning your recipients don't need to use Dropbox).

GOODSYNC isn't an online server in itself—it's a handy app that makes it really easy to sync your files to inexpensive storage services like Amazon S3, Google Drive and others, or even your own server via FTP. It also lets you automatically sync your files between multiple computers and external drives. Windows and Mac versions are available. From \$29.

EASY ARCHIVES

With memory cards like the Kingston Digital 16 GB SDHC retailing for under \$20, consider leaving your photos on the card even after you import them and simply use a new card once it's filled. That way, you'll always have your original files—just label and date the card and store it somewhere safe, like a fireproof box.

Another affordable protection is to copy your most important images onto a USB flash drive like the Transcend JetFlash 780, priced at about \$25 for 8 GB of storage. Fill it with your best shots, then keep it in your desk drawer at work, your car's glovebox or some other away-from-home location.



SOFTWARE

NO MATTER WHAT YOU WANT TO DO WITH YOUR PHOTOS, THERE'S A SOFTWARE SOLUTION TO HANDLE THE JOB

BY THE EDITORS



IMAGE MANAGEMENT

These applications excel at importing and organizing your photo library, but they do a lot more, including RAW processing and the essential adjustments you'll make to most images.

ACDSEE PRO 5

ACDSee has a variety of features to help you import and organize your images, and add ratings, keywords and color labels to make it easier to find your best shots later. It also has tools to correct lens-perspective distortions and ACDSee's Lighting and Contrast Enhancement for HDR effects from a single image. List Price: \$139.

ADOBE PHOTOSHOP LIGHTROOM 4

Lightroom was designed for photographers as a RAW workflow solution with

everything you need to manage, optimize and output your photos in a streamlined, clutter-free workspace. New in version 4 is support for GPS metadata for finding images by location, as well as the ability to import and organize video clips. List Price: \$149.

APPLE APERTURE

Apple's pro photo application offers a streamlined RAW workflow for Mac users, with a complete toolset for organizing, processing and exporting images. In addition to global adjustments, nondestructive brushes allow you to apply most image enhancements to specific areas of an image. It supports your HD video clips, too, and you even can make multimedia slideshows with your clips right in Aperture. List Price: \$79.

CAMERA BITS PHOTO MECHANIC

Photo Mechanic is a unique application in that it's strictly focused on photo management—no image enhancements here—but it has some powerful tools toward that end, like the ability to import from multiple flash cards simultaneously. It also allows you to really dig in and edit IPTC metadata. For pros who manage large photo libraries on a daily basis, Photo Mechanic may be the app you didn't know you needed. List Price: \$150.

COREL PAINTSHOP PRO X4 ULTIMATE

Don't let the name fool you—this is a photo application, and it's a good value, too. In addition to a broad range of native capabilities for managing and editing your photos,

it includes Nik Software's Color Efex Pro 3 filters built in. Also new in this version are nondestructive Adjustment Layers and a cool Selective Focus tool for simulating the look of tilt/shift lenses. List Price: \$99.

GENERAL EDITING

For everything from basic enhancements to more precise and intensive retouching, these all-purpose photo editors excel at handling the little details.

AOOBE PHOTOSHOP CS6

Photoshop doesn't need an introduction. It's arguably the most advanced and full-featured photo editor available, getting new capabilities in some cases years before the competition, though you'll pay to be ahead of the curve, both in terms of price and complexity. Along with a new, darker interface, CS6 adds a new Content-Aware Patch and an Adaptive Wide-Angle tool to fix fish-eye and wide-angle distortions. List Price: \$699.

AOOBE PHOTOSHOP ELEMENTS 10

Adobe recognized that there's a lot in Photoshop that most photographers don't need. Photoshop Elements answers that by offering many of the most popular Photoshop abilities, but in a simplified package. New in version 10 are Guided Edits, which walk you through the steps to do things like simulate reduced depth of photo, and crop guides for better compositions using the Rule of Thirds or the Golden Ratio. List Price: \$99.

ARCSOFT PHOTOSTUDIO 6

Another option for common photo edits, PhotoStudio 6 offers the basics like Magnetic Lasso selections, a cloning tool and support for multiple layers. It can work with most RAW file formats and offers an HDR option for combining three images for expanded dynamic range. It also includes handy features like the Magic-Cut function, which makes it easier to clip your subject from the background, and Face-Beautify to smooth skin for flattering portraits. List Price: \$79.

CYBERLINK PHOTO DIRECTOR 4 SUITE

This combo includes PhotoDirector 4, a comprehensive photo editor, along with ColorDirector, which provides tools for enhancing video clips. PhotoDirector 4 has a robust feature set, including RAW sup-

port, brushes to apply local adjustments, plus portrait-retouching capabilities and more. ColorDirector makes it easy to correct the exposure color in your video clips so all of your clips will match in the final movie. List Price: \$149.

DIGITAL LIGHT & COLOR PICTURE WINDOW 6

This application has been a Photoshop competitor for nearly 20 years, offering a complete set of tools for pro photo editing, including lens-correction capabilities, HDR compositing and RAW file support. There's also output features for making prints, page layouts and multimedia slideshows. New in version 6 is full 64-bit processing support, a noise-reduction tool and the ability to "drag and drop" adjustments from one image in a series to another. List Price: \$89.

PIXELMATOR 2

This application is only available for Mac OS, but if that's you, definitely check out Pixelmator as a Photoshop alternative. Practically every photo-editing feature you can imagine is here, including intelligent retouching brushes, support for layers and a variety of special effects. There's also text, shape, painting and drawing tools—it's a very complete package. For all of the power of Pixelmator, it's also incredibly affordable. List Price: \$59.

EFFECTS & PLUG-INS

Going beyond basic photo processing, these applications make creative enhancements and specialized adjustments easy, fast and fun.

ALIEN SKIN BOKEH 2

Alien Skin makes several great Photoshop plug-ins, including Bokeh 2, which lets you easily apply a variety of lens effects, such as simulating tilt/shift lenses and realistic depth-of-field reduction. New in this version is the ability to apply multiple effects to an image in different areas of it and grain matching to replace the grain structure that's normally blurred after applying these types of effects. List Price: \$199.

ANTHROPICS PORTRAIT PROFESSIONAL 10

If you shoot a lot of portraits, check out Portrait Professional, an incredibly powerful tool for smoothing and perfecting complexions and refining facial features quickly and easily. A step-by-step process walks you through the adjustments. Three versions are

available: Standard, Studio and Studio 64. The Studio version adds RAW file support, 48-bit color and batch processing; Studio 64 also adds optimization for 64-bit operating systems and unlimited file sizes. The Studio editions are offered as a standalone and as a plug-in for Photoshop, Lightroom, Elements and Aperture. List Price: From \$62.

ATHENTECH PERFECTLY CLEAR

This plug-in is a set of 12 one-step corrections you can quickly apply to improve exposure, reduce noise, remove color tints, improve skin tones, adjust contrast and sharpening, and more. Designed to deliver ideal enhancements automatically, you can tweak the results using simple slider controls, if you prefer. List Price: \$199.

NIK SOFTWARE SILVER EFX PRO 2

Nik Software is another leading plug-in maker, with an array of popular titles, including Color Efex Pro and HDR Efex Pro. Silver Efex Pro 2 is one of our favorites; it's a powerful, highly controllable application for converting your color photos to black-and-white images that pop. Forget the basic conversion tool in your photo editor; if you like to work in black-and-white, this is one application you should definitely try. List Price: \$199.

ONONE SOFTWARE PERFECT MASK 5

Perfect Mask takes a lot of the pain out of isolating your subject from the background, letting you do in a few minutes what could otherwise take much, much longer. New in this version is a library of backgrounds you can use for your portraits. onOne makes a variety of other great Photoshop, Lightroom and Aperture plug-ins, and standalone applications, too, including Focal Point for simulating lens effects and Perfect Portrait for retouching people. List Price: \$99.

TIFFEN OFX 3

Tiffen Dfx 3 Digital Filter Suite simulates dozens of classic Tiffen optical filters, but it does much more than that. It also can recreate the look of specialized lenses, lab processes, film grain and more. Plus, it includes tools to fix common photo problems like red eye, compression artifacts and noise. It's available as a standalone application or as a plug-in for Photoshop, Lightroom and Aperture. List Price: \$169 (standalone); \$229 (Photoshop). DP



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VIDEO MICROPHONES

IDEAL ON-CAMERA
MIC SOLUTIONS
FOR DSLRS
BY DAVID WILLIS

Sound presents unique challenges to both photographers and videographers alike, especially when working with the limited capabilities of a DSLR's built-in microphone system. On-camera mics are generally a low-cost, single-channel system that are lacking in professional features like balanced XLR inputs, multiple mic support and manual control over sensitivity and audio levels. Built-in mics are designed to capture the ambient noise of the surrounding environment, and this often includes not only the sound produced by the inner workings of the camera and lens, but also the omnidirectional noise of the surrounding environment. Ironically, the front-positioning of mics on a DSLR

even can block incoming audio thanks to camera handling.

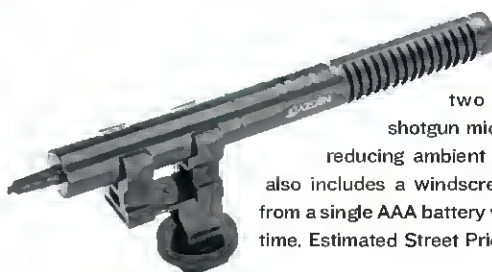
The solution is that many video-capable DSLRs offer a $\frac{1}{4}$ -inch input (also known as a 3.5mm or TRS mini-jack) for capturing audio through an external microphone. This will let you add direct capture of audio to video files through much more capable microphones that are available in a variety of configurations for best meeting the needs of your project. Omnidirectional mics like those in your camera will capture ambient sound from all surrounding areas, while directional mics are designed to capture audio from a specific area. To learn about the basic types of microphones, see our guide online at dpmag.com/mics.

MODELS



AUDIO-TECHNICA

The low-profile and very affordable PRO 24-CM stereo mini-shotgun mic from Audio-Technica includes a pair of cardioid mics (a forward-facing, heart-shaped pickup pattern) in an X/Y configuration for rejecting side noise and eliminating any latency between the pickup of each mic. The 4.6-inch mic anchors to a hot-shoe and is lightweight at less than four ounces. Estimated Street Price: \$69.



AZDEN

With a length of just less than seven inches and a weight of less than two ounces, Azden's stereo SMX-10 shotgun mic includes an internal lo-cut filter for reducing ambient noise created by wind and hum. It also includes a windscreen and hot-shoe mount. It powers from a single AAA battery with up to 400 hours of average run-time. Estimated Street Price: \$85.

QUE AUDIO

The Q Mini Shotgun PRO includes three levels of gain for setting the best audio "exposure" level between 0, +10 and +20 dB. The Q Mini Shotgun PRO is also available

in the Q DSLR-Video PRO Microphone Kit, which includes everything you'll need for anchoring the mic to a DSLR alongside wind-dampening tools and a custom case. The Q Sniper PRO Microphone Kit comes with these accessories, as well as a mini-boom pole for holding the mic off-screen. Uniquely, Que Audio's Compact Connection System offers a variety of connectors (3.5mm, balanced XLR and wireless transmitter adapters) for using the Q Mini Shotgun PRO with more than just your DSLR. Estimated Street Price: \$249 (Que Audio DSLR-Video PRO Microphone Kit); \$499 (Que Audio Sniper PRO Microphone Kit).





RØDE

The RØDE VideoMic Pro is compact and efficient, powering for up to 70 hours from a single 9V battery and weighing less than a fifth of a pound. It includes three steps of sensitivity and an 80 Hz high-pass filter for minimizing low levels of ambient noise like camera motors. The Stereo VideoMic Pro is offered as a similar solution, but with a wider angle of pickup thanks to an array of two cardioid mics. The Stereo VideoMic Pro will pick up more background audio than the VideoMic Pro, making it an ideal solution for live concerts or events. Estimated Street Price: \$229 (VideoMic Pro); \$299 (Stereo VideoMic Pro).

SENNHEISER

Sennheiser's MKE 400 shotgun is a compact mic that includes settable sensitivities for long or short distances. A foam windshield and shock-mount is included for reducing noise, and the microphone powers for more than 300 hours on a single AAA battery. Estimated Street Price: \$199.



AUDIO RECORDERS

Similar to a film production, dedicated external audio recorders give you uncompressed audio for far more leverage during the editing process, especially when recording dual soundtracks, one as a backup to the camera and one to a dedicated audio recorder. Audio recorders and XLR adapters (XLR-to-mini-jack for DSLRs) let you use XLR connections, which are professionally balanced against signal loss and interference from other electronics for 100 feet or more. They also give you access to pro-level mics, which often have to power from dedicated camcorder systems and are therefore incompatible with DSLRs. (When using dual sound recording, you have to sync audio with video files during the editing process; for best results, you need a clapper or on-camera hand clap. However, syncing is generally a simple extra step that even can be automated with programs like Singular Software's PluralEyes.)



JUICEDLINK

juicedLink's Riggy Micro is an XLR adapter and preamp that's small enough to mount to the top or bottom of a camera. An optional accessory bracket also makes it useful as a camera rig for adding mics, wireless receivers and other accessories. There are three XLR inputs, wireless capabilities for lavaliers and a 3.5mm stereo output with a balanced preamp that lets you capture audio directly to your video without the need for an audio recorder or dual sound. List Price: \$399.



TASCAM

The Tascam DR-40 includes adjustable microphone arrays and Neutrik Combo jacks for using an XLR or 1/4-inch microphone. There are several modes for controlling distortion, hum and audio peaking, including a Dual Recording mode that captures an automatic backup at a lower level (-12 dB) for a redundant copy of audio that can be used when the main track is distorted. Estimated Street Price: \$199.



BEACHTEK

The Beachtek DXA-SLR PRO audio adapter enables direct capture of audio to DSLR video files. It includes two XLR inputs with 12- or 48-volt phantom power for using professional-level microphones. There are also built-in VU meters, limiters and transformer-balanced inputs for controlling and monitoring audio levels. List Price: \$449.



ROLAND

The Roland R-26 includes two separate internal microphone designs that can be mixed together for achieving the best sound. There are two hybrid XLR/TRS (mini-jack) inputs, and the unit offers 48V phantom power, enough for feeding a stereo microphone. The unit captures audio in up to six independent channels and three stereo channels. Estimated Street Price: \$499.



ZOOM H4N

The Zoom H4n has been a go-to audio-recorder solution for DSLR videomaking for a couple of years now. The built-in stereo mics offer an angle pickup of 90° or 120° with an X/Y configuration for natural depth without time lag between the mics. The H4n will capture four channels of sound simultaneously for mixing and matching the onboard mics with external microphones. Estimated Street Price: \$249.

RESOURCES

ACD SYSTEMS

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www.stofen.com

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www.sunpak.com

TAMRAC
(800) 662-0717
www.tamrac.com

TAMRON USA
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www.tamron-usa.com

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TIFFEN
(800) 645-2522
www.tiffen.com

TOKINA (THK PHOTO PRODUCTS)
(800) 421-1141
www.thkphoto.com

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www.upstrap-pro.com

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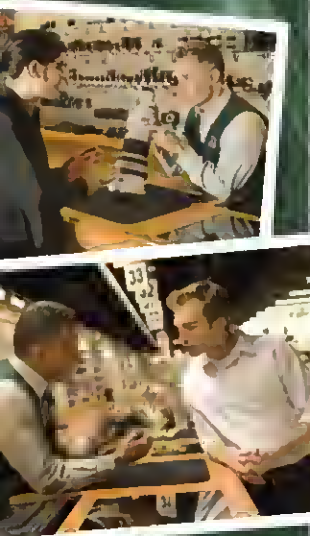
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Panasonic Lumix DMC-G5 Mirrorless Digital Camera

- Full HD 1080 60p Video • Micro 4/3 Lens Mount
- Redesigned Venus Engine Image Processor
- 3.0" Touch Screen Tiltable-Rotatable LCD
- SD/SDHC/SDXC Card Slot
- Live View Finder with Eye Sensor
- Electronic Silent Shutter Mode
- 14 Adjustable In-camera Filters
- Contrast AF, Touch AF and Light Speed AF

Kit with 14-42mm G Vario Lens..... #PDMCG5KKB



16 Mega Pixels

Canon Digital Rebel T4i DSLR

- STM Lens Support for Quiet AF in Movies
- DIGIC 5 Image Processor
- 3.0" Vari-Angle Touch Screen LCD
- Uses Canon EF Lenses (1.6x factor)
- SDHC/SDXC Card Slot
- ISO 100-12800, Expandable to 25600
- Full HD Movie Mode with Continuous AF

Body Only..... #CAEDRT4I
Kit with 18-55mm IS..... #CAEDRT4IK



18 Mega Pixels

Canon EOS-60D DSLR

- 1920 x 1080 HD Video Capture
- DIGIC 4 Image Processor
- SD/SDHC/SDXC Card Slot
- Works with all Canon EF & EF-S Lenses
- Vari-Angle Clear View 3.0" Flip-Out LCD
- 5.3 fps Continuous Shooting
- ISO 6400 - Expandable to 12800
- HDMI Output to HDTV

Body Only..... #CAE60D



18 Mega Pixels

▶ Canon

Call for Available Rebates & Promotions
on Select Bodies, Lenses and Flashes!

EOS Flash System (USA)

270EX II..... 430EX II.....
320EX..... 580EX II.....
600 EX-RT.....
MR-14EX Ringlight.....
MT-24EX Twin Flash.....

EF-S Lenses for Digital Only (USA)

(Net compatible with full frame cameras)
60/2.8 USM Macro (62x).....
10-22/3.5-5.6 IS USM (77x).....
15-85/3.5-5.6 IS USM (72x).....
17-55/2.8 IS USM (67x).....
17-85/4.5-5.6 IS USM (67x).....
18-135/3.5-5.6 IS (72x).....
18-200/3.5-5.6 IS (72x).....
55-250/4.0-5.6 IS USM (58x).....

EF Lenses (USA)

20/2.8 USM (72x)..... 35/2 (62x).....
28/2.8 IS USM (58x).....
50/1.8 II (62x)..... 100/2 USM (58x).....
50/1.4 USM (58x)..... 135/2.8 (52x).....
50/2.5 Macro (62x).....
85/1.8 USM (58x).....
100/2.8 USM Macro (58x).....
28-135/3.5-5.6 IS USM (72x).....
70-300/4.5-5.6 IS USM (58x).....
70-300/4.5-5.6 IS USM (58x).....
75-300/4.0-5.6 IS (58x).....
75-300/4.0-5.6 IS USM (58x).....

TS-E MF Lenses (USA)

17/4.0 II..... 45/2.8.....
24/3.5 II.....
90/2.8.....

EF "L" Lenses (USA)

14/2.8 USM II.....
24/1.4 II (77x).....
35/1.4 USM (72x).....
50/1.2 USM (72x).....
85/1.2 USM II (72x).....
100/2.8 IS USM Macro (67x).....
135/2.0 USM (72x).....
180/3.5 USM Macro (72x).....
200/2.0 IS USM (52x).....
300/4.0 IS USM (52x).....
300/2.8 IS USM II (62x rear).....
400/5.6 USM (77x).....
8-15/4.0 Fish-eye USM.....
16-35/2.8 USM II (62x).....
17-40/4.0 USM (77x).....
24-70/2.8 USM II (62x).....
24-105/4.0 IS USM (77x).....
28-300/3.5-5.6 IS USM (77x).....
70-200/4.0 IS USM (77x).....
70-200/2.8 IS USM (77x).....
70-200/2.8 IS II USM (77x).....
70-300/4.0-5.6 IS USM (67x).....
100-400/4.5-5.6 IS USM (77x).....
1.4x III Tele.....
2x III Tele.....

▶ OLYMPUS

Flash System

FL-300R Flash..... 169.95 FL-600R Flash..... 299.95
FL-50R Flash..... 499.95 RF-11 Ring Flash..... 249.95

Zuiko 4/3 System Digital Lenses

35/3.5 Mac ED (62x)..... 229.95 50/2.0 Mac ED (77x)..... 499.95
70/4.0 ED (77x)..... 1,799.95
11-22/2.8-3.5 FD (72x)..... 799.95
12-60/2.8-4 ED SWD (72x)..... 999.95
14-42/3.5-5.6 ED (58x)..... 249.95
18-180/3.5-6.8 ED (62x)..... 499.95
EC-14 1.4x Teleconverter..... 439.95

Canon 10-22/3.5-4.5 EF-S USM Digital Lens

- Exclusively designed for Digital SLRs
- 35mm equiv. 16-35mm
- 3 aspherical lens elements
- 3.5-2.7 f/stop Range
- Minimum focus 8.5"
- 77mm filter diameter
- Weight 13.6 oz



PENTAX 18-135mm f/3.5-5.6 ED AL (IF) DC WR Digital Lens

- Designed exclusively for Digital SLRs
- SP Coating Repels Dust, Water, & Grease
- Weather resistant
- Quick-Shift Focus System
- Min. focus: 1.3'
- 62mm filter diameter
- Weight 13.8 oz



Canon EOS-7D DSLR

- Record HD Video • CF Card Slot
- Uses Canon EF Lenses • 3" LCD
- Dust and Weather Resistant
- Selectable Video Exposure and Frame Rates • 8 fps Burst Mode
- 19-Point, All Cross-Type AF System
- ISO 100-6400 (expandable to 12800)

Body Only..... #CAE7D
Kit with 28-135mm IS..... #CAE7D28135

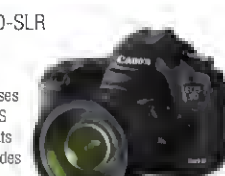


18 Mega Pixels

Canon EDS-5D Mark III D-SLR

- 3.2" Clear View High Resolution LCD
- DIGIC 5+ Image Processor • 61-Point High Density AF • Uses Canon EF Lenses
- Dual CF, SD Card Slots • Up to 6.0 FPS
- Full HD 1080/30p and 720/60p Formats
- Built-In HDR and Multiple Exposure Modes

Body Only..... #CAE5D3*
Kit with 24-105mm L IS..... #CAE5D324105



22 Mega Pixels

Canon EDS-1Dx D-SLR

- Dual DIGIC 5+ Image Processors
- Eye-Level Pentaprism Viewfinder
- 3.2" LCD Monitor • Uses Canon EF Lenses
- Dual CF card slots
- 1920 x 1080 HD Video Capture
- Live View Still and Video Recording
- 61-Point High Density Auto Focus

Body Only..... #CAE1DX*



18 Mega Pixels

▶ Nikon

Call for Available Rebates & Promotions
on Select Bodies, Lenses and Flashes!

AF Flashes

SB-400..... 326.95
SB-910..... 546.95
R1 Wireless Twin Flash.....
R1C1 Wireless Twin Flash System.....

DX ED-IF Lenses for Digital Only

10.5/2.8 Fish-Eye.....
35/1.8 G AF-S (62x)..... 196.95
40/2.8 G AF-S Micro (52x)..... 276.95
65/3.5 G ED VR Micro (52x).....
10-24/3.5-4.5 G AF-S (77x).....
12-24/4 G AF-S (77x).....
16-85/3.5-5.6 G AF-S VR (67x).....
17-55/2.8 G AF-S (77x).....
18-55/3.5-5.6 G AF-S II (52x).....
18-55/3.5-5.6 G AF-S VR (62x)..... 196.95
18-105/3.5-5.6 G AF-S VR (67x)..... 396.95
18-200/3.5-6.8 G AF-S VR II (72x)..... 646.95
55-200/4.5-5.6 G AF-S (52x).....
55-200/4.5-5.6 G AF-S VR (52x)..... 246.95
55-300/4.5-5.6 G AF-S VR (58x)..... 396.95

D-Type AF Lenses

14/2.8 D ED..... 24/2.8 D (52x).....
16/2.8 D (39x) with Hood.....
24/3.5 D ED PC-E (77x).....
28/1.8 G AF-S (67x)..... 699.95
28/2.8 D (52x).....
35/2.0 D (52x).....
45/2.8 D ED PC-E Micro (77x).....

D-Type AF Lenses

50/1.8 D (52x)..... 50/1.4 D (52x).....
50/1.8 G AF-S (58x)..... 216.95
50/1.4 G AF-S (58x).....
60/2.8 D Micro (62x) (1:1).....
60/2.8 G AF-S FD Micro (62x).....
85/1.8 D (62x) with Hood.....
85/1.8 G AF-S (67x)..... 496.95
85/1.4 D IF (77x)..... 85/1.4 G AF-S (77x).....
105/2.8 G AF-S ED-IF VR Micro (62x).....
105/2.0 DC D with Hood (72x).....
180/2.8 D ED-IF (72x).....
200/4 D ED-IF Micro w/Case (62x).....
200/2 G AF-S FD-IF VR II (52x).....
300/4.0 D AF-S FD-IF (77x).....
14-24/2.8 G AF-S ED-IF..... 1,996.95
16-35/4.0 G AF-S ED VR (77x).....
17-35/2.8 D AF-S FD-IF (77x).....
24-70/2.8 G AF-S FD-IF (77x)..... 1,886.95
24-85/2.8-4.0 D IF (72x).....
24-120/4.0 G AF-S ED VR (77x)..... 1,296.95
28-300/3.5-6.8 G AF-S ED VR (77x).....
70-200/2.8 G AF-S ED-IF VR II (77x)..... 2,396.95
70-300/4.5-5.6 G AF-S VR (67x)..... 586.95
80-200/2.8 D with Collar (77x).....
80-400/4.5-5.6 D VR (77x).....
200-400/4 G AF-S ED VR II (52x).....
TC-14E II (1.4x) Teleconverter.....
TC-17E II (1.7x) Teleconverter.....
TC-20E II (2x) Teleconverter.....

▶ PENTAX

AF Flash System

AF-360FGZ..... AF-540FGZ.....

SMCP-DA Digital AF Lenses

21/3.2 AL Limited "Pancake" (49x).....
40/2.8 Limited "Pancake" (49x).....
70/2.4 Limited "Pancake" (49x).....
10-17/3.5-4.5 FD IF (77x).....
16-50/2.8 FD AL IF SDM (77x).....
18-55/3.5-5.6 AL II (52x).....
50-135/2.8 ED IF SDM (67x).....
50-200/4.5-5.6 ED WR (52x).....

▶ SONY

Flash System

HVL-F20AM..... 149.99 HVL-F20S..... 149.99
HVL-F43AM..... 349.99 HVL-F58AM..... 499.99

Digital Lenses

24/2 Carl Zeiss (72x)..... 1,399.99
50/1.4 (55x)..... 449.99 100/2.8 Mac (58x)..... 799.99
16-80/3.5-5.6 DT Carl Zeiss (62x)..... 999.99
11-18/4.5-5.6 DT (77x)..... 799.99
18-200/3.5-6.3 DT (62x)..... 549.99
70-200/2.8 G APO (77x)..... 1,999.99
75-300/4.5-5.6 (55x)..... 249.99

Nikon S8-910 Speedlight I-TTL Shoe Mount Flash

- Tungsten & Fluorescent Filters Included
- Guide No. 111.5'
- Simplified Graphic User Interface (GUI)
- Bounce, Swivel & Zoom Head (17-200mm)
- Wireless Controller
- Weight 14.6 oz



SONY Alpha SLT-A77 DSLR

- Upgraded BIONZ Image Processor
- 2nd Gen Translucent Mirror Design
- OLED Electronic Viewfinder
- Swivel/Tilt 3.0" LCD Screen
- Uses Sony Alpha Lenses (1.5x factor)
- Built-In GPS • Dual Media Slots
- 1080p HD Movie Capture
- SteadyShot INSIDE Stabilization

Body Only.....#SOLTA77V* 24 Mega Pixels



Nikon D3200 DSLR

- EXPEED III Image Processor • HD 1080p Video
- 3" LCD • Live View • Up To ISO 12800
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC/SDXC Card Slot
- Nikon Inc. limited warranty included

03200 Kit Black w/18-55mm VR.....#NID32001855.....\$696.95
03200 Kit Red w/18-55mm VR.....#NID32001855R.....\$696.95
03100 Kit with 18-55mm VR.....#NID31001855.....\$646.95



Nikon D5100 DSLR

- 1080p HD Movies with Full Time Autofocus
- 3.0" Vari-angle LCD • SD/SDHC Card Slot
- Uses Nikon AF Lenses (1.5x factor)
- In-Camera Special Effects Mode
- In-Camera HDR (High Dynamic Range)
- Nikon Inc. limited warranty included

Body Only #NID5100.....\$746.95
Kit with 18-55mm VR #NID51001855.....\$846.95



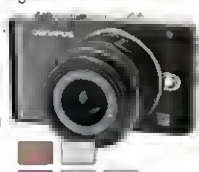
SIGMA AF LENSES

DC - for Digital SLRs Only • DG - Optimized for Digital SLRs			
C = Canon	N = Nikon	O = Olympus	P = Pentax
H = HSM Model with Canon, Nikon, Sigma			
R = Rear Slip-in Gelatin Filter Slot			
SKU #	Available for	Price	
DG 15/2.8 EX Diagonal Fish-Eye	C, N, P, S, SM	609.00	
DG 20/1.8 EX DF RF Aspherical (82a)	C, N, P, S, SM	629.00	
DG 28/1.8 EX DF Asph. Macro (77a)	C, N, P, S, SM	449.00	
DC 30mm 1/1.4 EX HSM (62a)	C, N, P, S, SM	489.00	
DC 50mm 1/1.4 EX (77a)	C, N, P, S, SM	499.00	
DG 50/2.8 EX Macro (55a)	C, N, P, S, SM	369.00	
DG 70/2.8 EX Macro (62a)	C, N, P, S, SM	499.00	
DG 85/1.4 EX HSM (77a)	C, N, P, S, SM	969.00	
DG 105/2.8 EX OS Macro (62a)	C, N, P, S, SM	969.00	
DG 150/2.8 EX APO Macro OS HSM (72a)	C, N, P, S, SM	1,099.00	
DC 300/2.8 APO EX HSM	C, N, P, S, SM	3,399.00	
DC 8-16/4.5-5.6 HSM	C, N, P, S, SM	699.00	
DC 10-20/4.5-5.6 EX HSM (77a)	C, N, P, S, SM	479.00	
DC 12-24/4.5-5.6 EX Asph. HSM	C, N, P, S, SM	949.00	
DC 17-50/2.8 EX OS HSM (77a)	C, N, P, S, SM	669.00	
DC 17-70/2.8 EX OS Macro HSM (72a)	C, N, P, S, SM	469.00	
DC 18-50/2.8 EX OS (67a)	C, N, P, S, SM	199.00	
DC 18-125/3.5-6.3 OS (67a)	C, N, P, S, SM	339.00	
DC 18-200/3.5-6.3 OS II HSM (72a)	C, N, P, S, SM	499.00	
DC 18-250/3.5-6.3 OS HSM (72a)	C, N, P, S, SM	479.00	
DC 24-70/2.8 EX IF HSM (82a)	C, N, P, S, SM	899.00	
DC 50-150/2.8 EX APO OS HSM (77a)	C, N, S	1,099.00	
DC 50-200/4.5-5.6 OS HSM (55a)	C, N, P, S, SM	159.00	
DC 70-200/2.8 EX OS HSM (77a)	C, N, P, S, SM	1,399.00	
DG 70-300/4.5-6.3 DL Mac. Super II (58a)	C, N, P, S, SM	169.00	
DG 70-300/4.5-6.3 OS (62a)	C, N, P, S, SM	359.00	

OLYMPUS E-PM1 Mirrorless Digital Camera

- 3.0" LCD with AR Coating • Live View Mode • High Speed Live MOS Sensor
- 4/3 Full Frame Zuiko Lenses
- TruePic VI Image Processor • 3D Photo Capture • 1080/60i HD Video Capture
- SD/SDHC/SDXC Card Slot • TTL Metering
- Available in Black, Brown, Pink, Purple, Silver, White

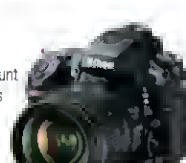
Kit with 14-42mm II Lens.....#OLEPM11442* 12 Mega Pixels



Nikon D800 D-SLR

- 35.9x24mm CMOS FX Format Sensor
- 3.2" LCD Monitor • Nikon F Mount Lens Mount
- CF & SD Dual Card Slots • Optical Low-Pass Filter • Eye-Level Pentaprism Viewfinder
- 1920 x 1080/30/25/24p HD Video Capture
- Matrix/Center-Weighted/Spot Metering
- Nikon Inc. limited warranty included

Body Only #NID800.....\$2,999.95



Nikon D4 DSLR

- RAW, TIFF, JPEG, RAW+JPEG Files
- 3.2" LCD with Live View
- FX-format (full-frame) CMOS Sensor
- 1080p HD Broadcast Quality Video
- CF Type 1 & XDQ Compatible
- Matrix, Center-Weighted, Spot Metering
- EXPEED3 Image Processor • 100-12800 ISO
- Nikon Inc. limited warranty included

Body Only #NID4.....\$5,999.95



Tokina AF LENSES

DX - for Digital SLRs Only • FX - Designed for full frame DSLRs			
SKU #	Available for	Price	
FX 100/2.8 Pro D Macro (52a)	C, N, P, S, SM	489.00	
DX 10-17/3.5-4.5 ATX Fisheye	C, N, P, S, SM	669.00	
DX 11-16/2.8 Pro (77a) ***	C, N, P, S, SM	699.00	
FX 12-24/4.0 Pro II (77a)	C, N, P, S, SM	599.00	
DX 16-28/2.8 Pro (77a)	C, N, P, S, SM	849.00	
FX 17-35/4.0 Pro (82a)	C, N, P, S, SM	669.00	

TAMRON AF LENSES

Di for digital & film SLR cameras • Di-II for Digital SLRs Only • Di-III for mirror-less cameras Only			
C = Canon	N = Nikon	P = Pentax	SE = Sony E Mount
SKU #	Available for	Price	
Di-II 60/2.0 LD IF Macro (65a)	C, N, S, M	\$100 424.00**	
Di 90/2.8 Macro (65a)	C, N, P, S, M	\$50 449.00**	
Di-II 10-24/3.5-4.5 (77a)	C, N, P, S, M	\$50 449.00**	
Di-II 17-50/2.8 XR LD IF Asph. (67a)	C, N, P, S, M	\$75 424.00**	
Di-II 17-50/2.8 VRC LD IF Asph. (67a)	C, N	\$100 549.00**	
Di-II 18-200/3.5-6.3 (62a)	C, N, P, S, M	299.00	
Di-III 18-200/3.5-6.3 VC (62a) Black or Silver	C, N, P, S, M	739.00	
Di-II 18-270/3.5-6.3 VC PZD (62a)	C, N, S, M	\$100 549.00**	
Di 24-70/2.8 VC USD (82a)	C, N, S, M	1,299.00	
Di 28-75/2.8 XR (67a)	C, N, P, S, M	\$25 474.00**	
Di 28-300/3.5-6.3 XR LD (62a)	C, P, S, M	419.00	
Di 70-300/4.5-5.6 VC USD (62a)	C, N, S, M	\$100 349.00**	
Di 75-300/4.5-5.6 LD (62a)	C, N, S, M	164.00	
Di 200-500/5.6-6.3 LD IF (86a)	C, N, S, M	949.00	
1.4x SP AF Pro Teleconverter	C, N	224.00	
2x SP AF Pro Teleconverter	C, N	254.00	

LENSBABY - Muse

Selective Focus SLR Camera Lens

Fast and Loose
Ideal for tabletop and macro photography. Squeeze the Muse to focus, and bend your Sweet Spot around the photo.



for Canon, Leica, Nikon, Olympus, Pentax, Sony #LEMU*.....\$149.95

TAMRON 17-50mm f/2.8

XR LD-IF Di II Digital Lens

• Exclusively designed for use with digital SLR cameras
• Magnification ratio of 1:4.5
• Min. Focus 10.6"
• Weight 15.2 oz



for Canon, Nikon, Pentax, Sony #TA175028*.....\$499.00

Tokina 12-24mm

f/4.0 AT-X Pro II DX Digital Lens

• Exclusively designed for use with digital SLR cameras
• Focus Clutch Mechanism
• Min. Focus 11.8"
• 99.61° angle of view
• 77mm filter diameter
• Weight 1.2 lb



for Canon, Nikon #TO12244DX*.....\$599.00

Mate 58 AF-2 TTL

Shoe Mount Flash

• Guide No. 58"
• Full TTL Mode
• Zoom Head (24-105)
• Bounce & Swivel Head
• Update via USB Port
• Weight: 12.8 oz



for Canon, Leica, Nikon, Olympus, Panasonic, Pentax, Samsung, Sony #ME58AF2* \$399.99

SIGMA 10-20mm f/4-5.6

EX HSM DC Digital Lens

• Exclusively designed for use with digital SLR cameras
• Focus 1.5' to Infinity
• Mag. ratio of 1:3.9
• Weight 2.16 oz



for Canon, Nikon, Olympus, Pentax, Sigma, Sony #SI102045D*.....\$479.00

SIGMA 18-200mm f/3.5-6.3

II DS HSM DC Digital Lens

• Exclusively designed for use with digital SLR cameras
• Optical Stabilizer (OS)
• Minimum Focus 1.5"
• Mag. ratio of 1:3.8
• Weight 17.3 oz



for Canon, Nikon, Sigma, Sony #SI1820035*.....\$499.00

SIGMA EM-140 DG TTL

Ringlight Flash

• Wireless TTL flash control
• High Speed Sync
• Ideal for photographing subjects in fine detail - close-up photography



for Canon, Nikon, Pentax, Sigma, Sony #SIEM140DG*.....\$379.00

Vivitar 285HV Professional

Auto Shoe Mount Flash

• Guide No. 120"
• Automatic exposure range to 70'
• 4 auto 1/step settings
• Removable sensor
• Bounce Head
• Zoom Head (28-105)
• Weight 14.9 oz



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GLOSSARY

Digital Photography Glossary

Check out common terms you need to know for digital imaging

Aberration

Essentially, anything in an image that isn't supposed to be there. For example, optical imperfections within a lens may cause barrel distortion or pincushioning. Barrel distortion, the outward curvature or bowing of straight lines, is most noticeable in wide-angle lenses or at the extreme wide-angle end of zoom lenses. Pincushioning, the inward curvature or bowing of straight lines (almost as if the image was pinched), is most common in telephoto lenses or the extreme telephoto end of zoom lenses. When corrective elements are incorporated into a lens design, most spherical aberrations can be minimized. Additionally, these spherical aberrations often can be adjusted with image-editing software. (See also **Chromatic Aberration**.)

Aperture

Measured in *f*-stop numbers, the aperture is the variable opening in a lens that controls the amount of light that hits the image sensor, thereby affecting exposure. A small *f*-stop number (e.g., *f*/2.8) represents a wide lens opening, which allows more light to pass through the lens to the sensor and is beneficial in low-light conditions. A larger *f*-stop number (e.g., *f*/8.0) narrows the lens opening and allows less light to hit the sensor. The latter allows a broader depth of field, while the former decreases the depth of field.

APO (Achromatic)

Lenses that use internal elements to bring all colors of the visible spectrum to a common point of focus, creating a sharp image and minimizing chromatic aberrations, are referred to as APO lenses. These lenses are generally more expensive than non-APO lenses.

Artifacts

Digital image anomalies caused by the image sensor, optics or internal image processing of the camera. These anomalies include blooming (brightened highlights usually visible along high-contrast edges); maze or moiré artifacts (maze artifacts appear in a maze-like pattern, while moiré artifacts occur as wavy lines); chromatic aberrations; jaggies (pixels visible in a stair-stepped pattern, usually along straight or curved lines); noise; and sharpening halos (a bright or white area similar to blooming that appears along an edge when an image has been oversharpened).

Bit-Depth

Also referred to as color depth, bit-depth determines the maximum number of shades or intensities of colors that can be represented at a time. Camera sensors typically have 12-bit-per-channel color (red, green and blue) for a 36-bit image (which JPEG compression reduces to 8 bits per channel). Although more bit-depth is preferable, there are diminishing returns beyond 8 bits per channel (8 bits x 3 channels = 24 bit-depth). Image file sizes increase dramatically, and not all devices (printers, monitors) will benefit from higher bit-depth. Additionally, some image editing may have limited, or no, capabilities of working beyond 8 bits.

CCD (Charge-Coupled Device)

CMOS (Complementary Metal Oxide Semiconductor)

Two types of sensors used in digital cameras. These sensors are the digital equivalent of film, in that, as the light enters the camera through the lens, the light waves are focused on the sensor, recorded electronically and then processed into a digital image. The CCD is the most common electronic image sensor used in digital cameras and is noted for its high quality, but also for its extensive power requirements.

CMOS is a sensor technology that encompasses all required camera circuits on a single chip. In the early days of digital photography, CMOS sensors were used in low-end digital cameras because they were less expensive to manufacture. However, as a result of recent technological advancements and the low power requirements of CMOS technology, there are now a number of high-resolution, high-quality digital cameras that use CMOS sensors.

Chromatic Aberration

A fringe or outline of any color generated when the lens doesn't focus all light waves at the same focal point. While a chromatic aberration can be purple, the term "purple fringing"—a purple/blue fringe along high-contrast edges—refers to a separate phenomenon that's generally caused by characteristics of the sensor.

Color Spaces

Every device that produces, measures or captures color has its own way of reproducing all the colors in the visible spectrum, which is known as its color space. The most common color spaces in digital photography are Adobe RGB 1998 and Adobe sRGB. The former has a broader color gamut (range of colors/tones), while sRGB has a smaller color gamut.

Compression

The process of encoding files through an algorithm, which decreases the size for storage or transmission over the Internet. There are two types of compression: lossy and lossless. Lossy compression (JPEG is an example) can result in visible degradation of image quality, especially when saving the same image as a JPEG multiple times, because some image data is lost in each compression process. Lossless compression (like LZW compression) preserves all image data.

Depth Of Field

The degree to which the scene remains in acceptably or perceived sharp focus in front of and beyond the focal plane. A larger aperture (e.g., *f*/16) produces a broader depth of field. A smaller aperture (e.g., *f*/2.8) can be used to throw the background out of focus, drawing the viewer's eye to the main subject.

Digital Zoom

A simulated zoom effect that enlarges the image on a portion of the image sensor. Akin to cropping, fewer pixels are used to capture the image, and though you end up with a closer view of the subject, the final image is generally of significantly lower resolution. With lower resolution, the ability to enlarge the photo without affecting image quality is reduced.

Dynamic Range

The range of tones, from lightest to darkest, that can be recorded, displayed or reproduced by devices such as image sensors, scanners, printers and monitors. The term also is used to describe the light-sensitivity range of film and the range of the reflected light of a print. A photograph produced by a camera with high dynamic range, for example, will retain image detail in both the shadows and highlights.

Exposure

A controlled amount of light projected to an image sensor or frame of film. This determines the lightness or darkness of an image and can be controlled manually by the photographer or automatically by the camera, or a combination of the two. If the aperture is too large and/or the shutter speed is too slow, an image will be too light, that is, overexposed, and vice versa.

Focal Length

The degree to which light from a scene is magnified by a lens. A short focal length like 28mm has a wider angle of view compared to the tight or telephoto focal length of a large 300mm lens. Zoom lenses have the ability to

move through a range of focal lengths, while prime lenses are fixed at a specific focal length.

Histogram

A sloping graph, resembling a mountain range with peaks and valleys, that illustrates the exact range of tones the image sensor has captured for a shot. Anything past the left edge of the graph is pure black and anything beyond the right edge is pure white. The height of the graph represents the number of pixels for a given area. Some digital cameras have "live" histograms that are visible on the LCD when taking pictures to help the photographer determine the proper exposure. Other digital cameras have a histogram in the playback mode so the photographer can determine, albeit after the fact, if the image was properly exposed. Many image-editing programs use histograms as a visual aid when adjusting image files during postprocessing.

Image Stabilization (IS)

Optical image stabilization utilizes gyroscopic sensors within the lens to detect and compensate for motion or camera shake. Alternatively, some cameras achieve IS by moving the image sensor when camera movement is detected. But not all image stabilization is the same, nor as effective. For example, the latest trend in compact cameras is "image stabilization" that does nothing more than boost the ISO (light sensitivity) to achieve a higher shutter speed to avoid blurry pictures. Unfortunately, this type of "stabilization" usually is compromised by high levels of image noise.

Interpolation (Resampling)

Artificially increasing or decreasing the number of pixels in an image through the use of an algorithm. Some cameras increase the number of pixels automatically to compensate for digital zoom, but this interpolation often results in degradation of image quality. Image-editing software also interpolates pixels when enlarging an image beyond its core values of pixel count and resolution.

ISO (Light Sensitivity)

The ISO rating is an indication of light sensitivity in digital photography. Sensitivity is increased by amplifying sensor output, which also increases noise output, much like the increased grain in film with higher light sensitivity. ISO levels range from 50 to 204,800. The higher the ISO, the less actual light is needed to achieve a good exposure. At the same time, by increasing the ISO number, a higher shutter speed can be achieved, lessening the probability of a blurred image due to camera shake—but with higher ISOs, often at the expense of higher image noise levels.

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JPEG (Joint Pictures Expert Group)

A common algorithm for the compression of image files. JPEG compression can vary from nearly lossless to highly lossy. All digital cameras are capable of capturing images in JPEG format, and because JPEG is a standard, JPEG image files can be read by all image-processing software.

LD, ED And UD Glass (Low-Dispersion, Extra-Low-Dispersion And Ultra-Low-Dispersion Glass)

All of these terms refer to a glass type used in lenses. These formulated glasses correct the path of light rays as they pass through the lens, making all colors in the color spectrum focus at the same point. Lenses constructed with these types of glass eliminate or lessen the occurrence of aberrations and some types of artifacts.

Macro

Primarily used for close-up photography, macro refers to a one-to-one or higher magnification of a subject provided by optics (i.e., a macro lens). The focal length of a macro lens determines how close the lens must be to a subject to attain a one-to-one image capture. For example, a 60mm macro lens will require a shorter lens-to-subject distance than a 100mm macro lens.

Megapixel (One Million Pixels)

The number of photodiodes (also known as photosites or pixels) on an image sensor is expressed in megapixels, which, in turn, is the resolution of the device (a camera, scanner, etc.). Most sensors have one photodiode for each pixel in an image. For example, a 5-megapixel camera has five million photodiodes.

Noise

Image artifacts caused by complex variations with color that manifest themselves as grain on an image. Excessive noise, which most often is seen first in shadows, usually results in an objectionable-looking image. High-resolution digital cameras with small image sensors, where more pixels are forced to live in a smaller space and have physically smaller photodiodes, are more subject to noise than sensors with larger photodiodes. High ISO (light sensitivity) also generates image noise. Most digital cameras are equipped with some form of noise reduction that's either automatically triggered with high ISOs or long exposures or, in higher-end cameras, can be turned on and off manually. When noise reduction is applied in-camera (or via image-editing software), it can result in softened or blurred details to lessen the visibility of the noise.

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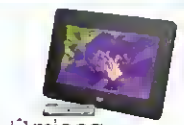
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RAW

An image-capture option containing the maximum information available from a sensor without the application of in-camera processing algorithms. This allows photographers to have more control over the final image by processing the image manually in a software program. The format is offered by many high-end compact digital cameras as well as DSLRs. Each camera company has its own RAW format and corresponding software to support the format. Image-editing applications like Adobe Photoshop also are capable of opening and processing images shot in RAW.

Shutter Speed

The amount of time the lens shutter remains open when the shutter is pressed. This controls, in conjunction with the aperture, the amount of light that hits the sensor, determining the exposure. At the same time, the shutter speed can affect whether or not the image is in focus, especially if the subject is moving. Faster shutter speeds are measured in fractions of one second—averaging $\frac{1}{1000}$ sec. or higher. Many cameras also allow the shutter speed to be set in full seconds for longer exposures.

TIFF (Tagged Image File Format)

A standard image file format for bit-mapped graphics. TIFF files are uncompressed and, therefore, very large compared to compressed formats. Not only do TIFF files occupy more hard-drive space for storage, but it takes longer for the camera to write these files to a media card, thereby slowing down some aspects of camera performance. TIFF is a standard, so TIFF files can be read by all imaging software.

White Balance

A calibration of color temperature to a degree on the Kelvin scale where white reads as white rather than the varying shades of white caused by different lighting conditions. For example, white in the morning is a cooler blue of white, especially when compared to the very warm yellow of afternoon sun. White-balance settings can be changed within the camera to adjust for sun, shade, tungsten and fluorescent lighting; automatic white balance also is an option, although accuracy is generally inconsistent. Custom or manual white balance is available in many cameras and is accomplished by pointing the camera at a white surface and clicking the shutter.

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The **FLASHPOINT** DG600's big digital display makes settings easy to read, and its sturdy, fan-cooled housing features a secure, rubberized surface. Why pay more?

The Flashpoint DG600 can be operated cord-free with an optional battery pack (far right). Ideal when on-site electricity is unavailable.

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TRIPOD REPORT

Supporting Role

Flashpoint tripods & heads

Why every photographer needs a good tripod. By Marvin Good

Right: Two of the top Flashpoint carbon-fiber tripods, the twist-lock Flashpoint F-1428N and the lever-lock Flashpoint F-2328N (\$229.95), plus the muscular Flashpoint F-4 ball head (\$114.95).



The most unappreciated, underused piece of equipment in all of photography is without a doubt the tripod. Even photographers who understand a tripod's value are often reluctant to spend money on one. It's money well spent—but you don't have to pay a lot to get a good tripod.

Flashpoint tripods, tripod heads, and monopods offer the features and quality of big-brand competitors at a fraction of the cost. The Flashpoint F-1428 tripod, for example, is made of 8X carbon fiber, which gives it high strength without excess weight. It can support a camera and lens weighing over 26 pounds, yet weighs less than six pounds itself. And while the F-1428 rises to six feet when you extend its center column—great for high angles and tall photographers—it collapses to two feet in length thanks to the four-section design of its rubberized twist-lock legs. (The column is reversible for low-level work.)

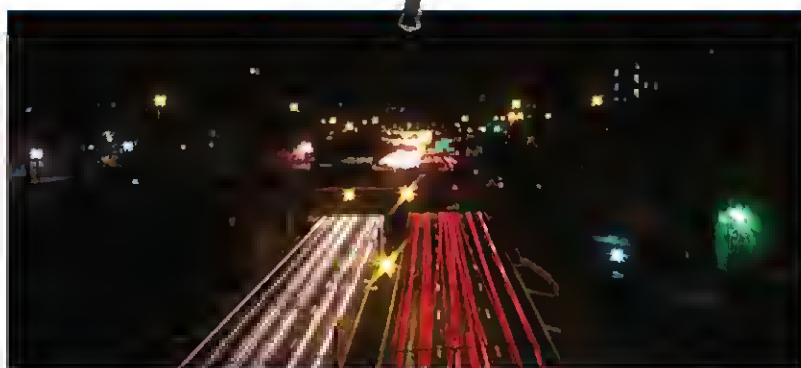
Prefer fast-action lever-locks? Take a look at the carbon-fiber Flashpoint F-2328. Like the F-1428, it supports over 26 pounds in camera and lens weight, features a built-in bubble level for easy alignment, yet weighs even less than its twist-lock sibling!

Before you moan and groan about the nuisance of carrying a tripod around, con-

Flashpoint tripods and heads are available exclusively from **ADORAMA**. To order, visit the Adorama store, Adorama.com, or call (800) 223-2500.



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One classic photographic effect that requires a good tripod is turning car lights into streaks with a long exposure, achieved here with a Flashpoint tripod.

Photographer: Sandy Ramirez

sider what it can do for you. First and foremost, it gives you tack-sharp pictures at slow shutter speeds that would cause blur if you were to handhold the camera. What about the in-camera image stabilization found in most of today's DSLRs? Sure, it gives you an edge—but since everyone's degree of steadiness is different, you never really know how slow you can safely go. And the damage isn't always obvious blur. Sometimes shaky hands just cause an irksome lack of crisp detail that you may have been blaming on improper focus. A tripod insures that this won't happen.

A tripod is especially important when you're using a long lens, such as a telephoto for wildlife photography. That's because the longer a lens, the greater the chance of blurred results. This is why long-lens photographers set high shutter speeds for handheld shooting—but they're still often pushing their luck. A tripod is the best insurance that they'll come back with sharp shots. And as a

side benefit, a tripod keeps the viewfinder image from jumping around the way it does with a handheld telephoto, letting you frame the subject more precisely.

Even at less extreme focal lengths, a tripod is an important compositional tool, providing precision and repeatability you can't get handheld. It means that bracketed exposures will all have the same framing. And it's essential for exact matching of frames with HDR imaging.

To learn more about which Flashpoint tripod is right for your kind of photography, visit the Flashpoint store at Adorama.com. (Just type "Flashpoint carbon" into the search field.) You'll find a tripod for every purpose, from the models mentioned here all the way down to ultra-light travel tripods, plus everything in between. You'll also find a complete line of Flashpoint tripod heads for these models, as well as Flashpoint monopods—single-legged supports that offer a compromise between stability and mobility. But that's a discussion for another time!



ERIK JOHANSSON

Crossing

ERIK JOHANSSON likes to skew reality, sometimes creating street illusions like the scene pictured here. "I don't capture moments, I capture ideas. To me, photography is just a way to collect material to realize the ideas in my mind. I get inspired by things around me in my daily life and all kinds of things I see," says the self-taught photographer who's based in Berlin. "Although one photo can consist of hundreds of layers, I always

want it to look like it could have been captured. Every new project is a new challenge, and my goal is to realize them as realistically as possible." An image can take anywhere from a few days to several weeks for him to complete. To see more of his work, go to www.erikjohanssonphoto.com.

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